Biological Forum – An International Journal **16(4): 85-89(2024)**

ISSN No. (Print): 0975-1130
ISSN No. (Online): 2249-3239

Seasonal Incidence of Leaf Roller, *Sylepta derogata* (Fabricius) in Cotton

Dalsaniya N.S.[1], Patel R.D.[2*], Bhanderi G.R.[2], Desai H.R.[3] and Rathod T.R.[1]

[1]M.Sc. Scholar, Department of Entomology, N. M. College of Agriculture, NAU, Navsari (Gujarat), India.
[2]Assistant Research Scientist (Ento.), Main Cotton Research Station, NAU, Surat (Gujarat), India.
[3]Associate Research Scientist (Ento.), Main Cotton Research Station, NAU, Surat (Gujarat), India.

(Corresponding author: Patel R.D.)*
(Received: 05 February 2024; Revised: 20 February 2024; Accepted: 14 March 2024; Published: 15 April 2024)
(Published by Research Trend)

ABSTRACT: Study on seasonal incidence of leaf roller, *Sylepta derogata* F. was carried out on non-*Bt* cotton hybrid. Leaf roller activity initiated in fifth week of July (31st SW) and it continued till the fourth week of December (52nd SW). The peak incidence was observed in first week of October (40th SW) and again in fourth week of October (43rd SW). Correlation studies indicated that maximum temperature had significant positive association with larval population (r = 0.439*) and rolled leaves (r = 0.469*) and non-significant positive correlation with damaged leaves (r= 0.234). The leaf roller larval population, rolled leaves and leaves damage had non-significant negative association with morning relative humidity (r = -0.166, -0.302 and -0.045), rainfall (r = -0.215, -0.309 and -0.124) and rainy days (r = -0.237, -0.357 and -0.052), respectively. Non-significant positive correlation with minimum temperature (r = 0.033, 0.114 and 0.243), evening relative humidity (r = 0.107, 0.005 and 0.323) and bright sunshine hours (r = 0.314, 0.422 and 0.106), respectively.

Keywords: Cotton, Leaf roller, *S. derogata,* Correlation, Population dynamics.

INTRODUCTION

Cotton (*Gossypium hirsutum* L.) belongs to the "Malvaceae" family and "*Gossypium*" genus (Manjunatha *et al.,* 2009). It is also known as 'White gold' which enjoys a predominant position amongst all cash crops in India and plays a significant role in the national economy. About 65 per cent requirements of the Indian textile industry are contributed to cotton as a vital raw material. Indian textile industries with 1500 mills occupy a significant place in the country's economy (Shivagaje *et al.,* 2004). Introduction of the *Bt* cotton the minor pests (sucking pests and caterpillars) have become major nowadays. According to the report of Gujar *et al.* (2010), no leaf roller damage was found in the *Bt* hybrids however, their non-*Bt* counterparts showed 79 to 88 per cent plant damage and 21 to 44 per cent foliage rolled for respective hybrids. Cotton leaf roller nowadays observed especially in non-*Bt* cotton. The pest occurs in India, Pakistan, Bangladesh, Burma, Australia, Africa, China, Japan and Sri Lanka. The pest is active from the month of September to November. The leaf roller is a polyphagous that feeds on malvaceous plants such as *G. hirsutum, A. esculentus, H. rosasinensis, U. lobata, A. rosea, S. cordifolia* and *M. tricuspidatum.* The leaves rolled in the trumpets fastened by silken threads and feed on the green tissue in early stage and eat up a large portion of the leaf as it grows. Caterpillar infestation can vary with some leaves having as few as 5 to 6, while others may have as many as 32 young caterpillars on a single damaged leaf (Mariselvi and Manimegalai 2016). In case of heavy infestation, phyllophagous could alter the photosynthetic activity of the plant and cause complete defoliation. The fifth and sixth instar larvae consume both the parenchyma and epithelium of leaves, producing holes of varying diameters. The larvae preferred soft fresh leaves for eating and did not feed on other plant parts. Leaves that have been extensively damaged turn yellow and dry. Larvae destructive feeding activity limits photosynthetic area, as well as the quantity and quality of minerals and water uptake by the plant. If the above procedure continues, the plant will dry totally (Gahramanova *et al.,* 2020). Up to 50 per cent yield loss due to leaf roller in cotton have been reported in the northwest ecological zone of Nigeria (Yahaya, 2008).

MATERIAL AND METHODS

A study of the population dynamics and impact of weather parameters on incidence of leaf roller, *S. derogata* in non-*Bt* cotton hybrid (RCH 659), field experiment was carried out during *kharif*, 2022-23 at Main Cotton Research Station, Navsari Agricultural University, Surat (Gujarat). The cotton was sown in a large block of 20.40 × 20.25 m (413 m^2) during second fortnight of June at a spacing of 1.20 × 0.45 m. In order record the larval population of leaf roller, the entire plot divided into ten equal quadrates and five plants were selected randomly from each quadrate. For recording the observation on seasonal incidence of the leaf roller, weekly data on the number of larvae in rolled leaves per plant on fifty randomly selected plants was recorded from seven days after germination till the removal of crop. Similarly, number of rolled or damage leaves were counted on the plants at weekly interval and per cent leaves damage by *S. derogata* worked out. The

observations were recorded at weekly intervals throughout the cropping season. Plot was kept completely free from the insecticides spray during whole season. In order to study the instantaneous effect of weather parameters on population fluctuation of leaf roller and its damage, Week-wise data on various parameters recorded by Meteorology observatory, Main Cotton Research Station, Navsari Agricultural University, Surat.

RESULTS AND DISCUSSION

A. Incidence of leaf roller

The periodical week wise data on larval population of leaf roller per plant, number of rolled leaves per plant and per cent leaf damage per plant are summarized in Table 1. The pest observed from fifth week of July (31st SMW) and it continued till the fourth week of December (52nd SMW). Leaf roller, *S. derogata* larval population, rolled leaves per plant and per cent damage leaves were ranged from 0.60 to 85.82, 1.24 to 45.96 per plant and 1.69 to 44.50 per cent damage leaves in non-*Bt* cotton, respectively. The incidence of leaf roller was increasing slowly up to second week of September (37th SMW) with 1.64 to 21.40 larvae/plant, 1.24 to 11.36 rolled leaves/plant and 6.30 to 17.69 per cent damage leaves. The population gradually increased from third week of September (38th SMW) to fourth week of September (39th SMW), number of larvae, rolled leaves and per cent damage leaves was 33.94 to 51.04/plant, 15.48 to 28.48/plant and 18.56 to 30.63 per cent, respectively. Population increased drastically and the peak was observed in first week of October (40th SMW) with 85.82 larvae/plant which was the highest population recorded with 45.62 rolled leaves/plant and 44.50 per cent damage leaves. A little reduction in leaf roller population was recorded in second and third week of October (41st and 42nd SMW) with 83.20 larvae/plant (45.96 rolled leaves/plant and 42.34 per cent damage leaves) and 76.36 larvae/plant (40.36 rolled leaves/plant and 34.21 per cent damage leaves), respectively. Again, second peak 81.44 larvae/plant with 40.46 rolled leaves/plant and 30.49 per cent damage leaves was observed during the fourth week of October (43rd SMW). The population of leaf roller decreased 72.14 larvae/plant with 38.26 rolled leaves/plant and 26.79 per cent damage leaves from fifth week of October (44th SMW) than gradually decrease from November. The activity of leaf roller larval population ranged from 32.14 to 60.88/plant with 22.46 to 34.22 rolled leaves/plant and 15.07 to 23.23 per cent damage leaves were observed from first week of November (45th SMW) to third week of November (47th SMW). The population of leaf roller gradually decreased 18.22 larvae/plant with 17.26 rolled leaves/plant and 11.72 per cent damage leaves from fourth week of November (48th SMW) to 0.60 larva/plant with 2.22 rolled leaves/plant and 1.69 per cent damage leaves, last week of December (52nd SMW). Thus, it was clear from data that relatively higher activity of leaf roller larva with 72.14 to 85.82 larvae/plant, 38.26 to 45.96 rolled leaves/plant and 26.79 to 44.50 per cent damage leaves observed during first week of October to fifth week of October (40th to 44th SMW) in non-*Bt* cotton. The incidence of leaf roller during the season was 33.10 larvae/plant with 19.63 rolled leaves/plant and 18.53 per cent damage leaves recorded in non-*Bt* cotton hybrid.

The study on seasonal dynamics of leaf roller on various host plants was carried out by various researchers. Bhatnagar *et al.* (1993) observed the maximum activity in last week of August (35th SMW) to last week of September (39th SMW) in cotton. Ghosh *et al*. (1999) showed that leaf roller appearance in okra during the first week of July with higher population was recorded until August. Hiramatsu *et al.* (2001) observed the activity of leaf roller was started from last week of June (26th SMW) to first week of November (45th SMW) with peak incidence reported in 3rd week of August (34th SMW) and higher activity found in September and October month and remained continue up to November. Naresh *et al.* (2003) observed the peak incidence (2.33 larvae/plant) during the second fortnight of August. Roychoudhury *et al.* (2009) recorded the leaf roller infestation in the forest tree occurred from July to September. Badiyala (2011) revealed that peak activity of leaf roller was observed during first week of August (32nd SMW) and third week of August (34th SMW) in Palampur and last week of July (31st SMW); second week of August (33rd SMW) and fourth week of July (30th SMW) in Kachhari. Boopathi *et al.* (2011) noted that the leaf roller infestation levels reached their highest (0.40/plant) in May. Lok *et al*. (2011) recorded the maximum level of rolled leaves reached from 1.60 to 2.80 per plant during 39th SMW (4th week of September). Iyamu (2012) observed the leaf roller lower infestation in July (16.10%) and August (11.30%) where highest field larval population observed during November to December was 96.20 per cent. Laxman *et al.* (2014) noted the leaf roller infestation was observed during August to November (1.16 to 10.49 per cent) in non-*Bt* cotton. Ogbalu *et al*. (2015) noted the larvae feed on okra pods resulting in defoliation of leaves, shedding of pods (92.40%), effect on seed viability (64.50%). Pan and Xiu (2016) reported that higher activity during September on *A. theophrasti*, *A. rosea* and *A. esculentus* than that on *G. hirsutum.* Hansda *et al.* (2017) showed the leaf roller occurred during July to November and its peak period was from September to October (10 larvae/plant). Nair *et al*. (2017) reported the pest relative abundance was 8.86 and 8.46 per cent during summer and winter, respectively. Behera (2018) mentioned the incidence was started during fourth week of August (35th SMW) and higher activity noticed during third week of October (42nd SMW) with the peak population in second week of November (46th SMW). The population started to decline from the third week of November and the incidence was observed until the second week of December in non-*Bt* cotton. Roy *et al*. (2018) reported the leaf roller population was highest (5.25 ± 3.22/plant) at seven weeks after sowing (17th SMW) and lowest (1.25 ± 0.67/plant) at four WAS (14th SMW). Das *et al.* (2021) revealed the peak activity of leaf roller observed during third week of

March (4.50 larvae/plant) and third week of August (5.00 larvae/plant) in *Rabi* and *Kharif* season, respectively. Karpun *et al.* (2022) found that leaf roller was observed during end of July to early August caused severe damage to *Hibiscus* spp. and defoliation level ranged from 50 to 100 per cent. Mailafiya *et al.* (2022) observed that the plant infestation by *S. derogata* ranged from 84 (83 larvae/field) to 88 (69 larvae/field) per cent during 2018 and 2019, respectively. In present investigation, leaf roller activity was higher during third week of September (38th SMW) to third week of November (47th SMW) with first peak during first week of October (40th standard week) and second peak during third week of October (42nd SMW) in non-*Bt*hybrid. Thus, above reports of Hiramatsu *et al.* (2001); Iyamu (2012); Hansda *et al.* (2017); Behera (2018); Mailafiya *et al.* (2022) are more or less in accordance with present investigation. Conversely Bhatnagar *et al*. (1993), Ghosh *et al*. (1999); Naresh *et al.* (2003); Roychoudhury *et al.* (2009); Badiyala (2011); Boopathi *et al.* (2011); Lok *et al*. (2011); Ogbalu *et al*. (2015); Pan and Xiu (2016); Nair *et al*. (2017); Roy *et al*. (2018); Das *et al.* (2021); Karpun *et al.* (2022) do not tally with present observations might be due to study on different host crops, locations, sowing time and climatic condition.

Effect of weather parameters on incidence of leaf roller. To study the relationship between leaf roller incidence and weather parameters, the pest population dynamics data were correlated with meteorological parameters data. The results obtained are presented in Table 2. The results on correlation between incidence of leaf roller larva and different weather parameters revealed that only maximum temperature (r = 0.439*) showed significant positive correlation whereas, minimum temperature (r = 0.033), evening relative humidity (r = 0.107) and bright sunshine hours (r = 0.314) had a non-significant positive correlation with the leaf roller population. Morning relative humidity (r = -0.166), rainfall (r = -0.215) and rainy days (r = -0.237) showed non-significant negative association with the incidence of leaf roller infesting non-*Bt* cotton. The results on correlation between number of rolled leaves by *S. derogata* and different weather parameters revealed that only maximum temperature (r = 0.469*) showed significant positive correlation association whereas morning relative humidity (r = -0.302), rainfall (r = -0.309) and rainy days (r = -0.357) showed non-significant negative association. Bright sunshine hours (r = 0.422), minimum temperature (r = 0.114) and evening relative humidity (r = 0.005) had a non-significant positive correlation (Table 2). Correlation for per cent leaves damage by *S. derogata* with abiotic factors revealed that maximum temperature (r = 0.234), minimum temperature (r = 0.243), evening relative humidity (r = 0.323) and bright sunshine hours (r = 0.106) had non-significant positive correlation. Rainfall (r = -0.124), morning relative humidity (r = -0.045) and rainy days (r = -0.052) showed non-significant negative association.

The study on correlation of weather parameters with population of *S. derogata* was carried out by various researchers in different hosts. Bhatnagar *et al*. (1993) mentioned that maximum temperature (31.3°C to 36.2°C), minimum temperature (19.7°C to 25.1°C) and relative humidity (60.50 to 76.30%) with presence of intermittent light to moderate rainfall were favorable for the multiplication of *S. derogata*. Ghosh *et al*. (1999) revealed that negative and non-significant correlation with maximum temperature (r = -0.565) while positive and significant correlation with minimum temperature (r = 0.804*) and relative humidity (r = 0.588*) to leaf roller incidence. Badiyala (2011) reported the relative humidity had significant positive, bright sunshine hours exhibited a significant negative while, maximum temperature had negative whereas minimum temperature had positive correlation but non-significant against pest activity. Lok *et al*. (2011) observed that the larvae of cotton leaf roller exhibited non-significant positive association with relative humidity, rainfall and bright sunshine hours whereas, temperature had non-significant negative correlation. Iyamu (2012) noted that rainfall and temperature during early, mid and later season had significant negative correlation while relative humidity had significant positive correlation. Laxman *et al*. (2014) noted that maximum temperature (r = -0.216) had non-significant negative correlation while, rainfall (r = 0.026) had non-significant positive correlation. The minimum temperature (r = -0.424**), morning relative humidity (r = 0.516**) and evening relative humidity (r = 0.706**) had highly significant positive correlation with the leaf roller incidence and damage. Behera (2018) reported that the maximum temperature had significant negative association minimum temperature, relative morning and evening humidity and rainfall had non-significant negative correlation with leaf roller population in non-*Bt* cotton. Roy *et al*. (2018) noted that the maximum (r = 0.465**) and minimum temperature (r = 0.592**) had highly positive significant whereas maximum relative humidity (-0.128), minimum relative humidity (0.237), rainfall (0.111), sunshine hours (-0.170) and wind speed (0.025) had non-significant correlation. Das *et al*. (2021) observed that minimum temperature (r = 0.017) exhibited a positive correlation while maximum temperature (r = -0.350), rainfall (r = -0.229), bright sunshine hours (r = -0.530), morning relative humidity (r = -0.357) and evening relative humidity (r = -0.410) were negatively correlated with leaf roller population. In present investigation maximum temperature had significant positive correlation. Minimum temperature, evening relative humidity and bright sunshine hours had positive correlation. Morning relative humidity, rainfall and rainy days had significant negative correlation with leaf roller larval population, rolled leaves/plant and per cent leaves damage. Therefore, results of Bhatnagar *et al*. (1993); Lok *et al*. (2011) ; Das *et al*. (2021) are strongly accordance with the results of present investigation. Moreover, results of Ghosh *et al*. (1999), Badiyala (2011); Iyamu (2012); Laxman *et al*. (2014); Behera (2018); Roy *et al*. (2018) do not tally with present experiment results.

Table 1: Population dynamics of leaf roller, *S. derogata* in non-*Bt* cotton.

Sr. No.	Months and weeks		Standard Meteorological Week (SMW)	Larvae/plant	No. of rolled leaves/plant	Leaves damage (%)/plant
1.	**July**	V	31	2.10	1.24	6.30
2.	**August**	I	32	1.64	2.00	8.47
3.		II	33	2.88	3.50	10.96
4.		III	34	7.48	4.00	10.37
5.		IV	35	12.44	8.50	17.69
6.	**September**	I	36	16.30	9.28	16.00
7.		II	37	21.40	11.36	15.89
8.		III	38	33.94	15.48	18.56
9.		IV	39	51.04	28.48	30.63
10.	**October**	I	40	85.82	45.62	44.50
11.		II	41	83.20	45.96	42.34
12.		III	42	76.36	40.36	34.21
13.		IV	43	81.44	40.46	30.49
14.		V	44	72.14	38.26	26.79
15.	**November**	I	45	60.88	34.22	23.23
16.		II	46	54.28	30.44	20.70
17.		III	47	32.14	22.46	15.07
18.		IV	48	18.22	17.26	11.72
19.	**December**	I	49	10.04	19.64	13.78
20.		II	50	2.64	6.88	5.06
21.		III	51	1.20	4.26	3.19
22.		IV	52	0.60	2.22	1.69
Mean				**33.10**	**19.63**	**18.53**

Table 2: Correlation between incidence of *S. derogata* and weather parameters in non-*Bt* cotton.

Weather parameters	Correlation co-efficient (r)		
	Larvae/plant	Rolled leaves/plant	Leaves damage (%)/plant
Maximum Temperature, °C(Max. T)	0.439*	0.469*	0.234
Minimum Temperature, °C(Min. T)	0.033	0.114	0.243
Morning Relative Humidity, % (MRH)	-0.166	-0.302	-0.045
Evening Relative Humidity, % (ERH)	0.107	0.005	0.323
Bright Sunshine Hours, hrs (BSS)	0.314	0.422	0.106
Rainfall, mm (RF)	-0.215	-0.309	-0.124
Rainy days (RD)	-0.237	-0.357	-0.052

*Correlation is significant at the 0.05 level

Healthy leaf

Larva of *S. derogata* on leaf

Rolled leaves with damage

Leaves damage in plant

CONCLUSIONS

The leaf roller population incidence commenced from fifth week of July (31st SMW) and it continued till the fourth week of December (52nd SMW). The peak activity of leaf roller was observed in first week of October (40th SMW) and again in fourth week of October (43rd SMW) and then population gradually declined. Correlation of pest infestation with weather parameters showed that only maximum temperature had significant positive association while, minimum temperature, evening relative humidity and bright sunshine hours had non-significant positive correlation and non-significant negative association with morning relative humidity, rainfall and rainy days.

Acknowledgement. The authors are thankful to Main Cotton Research Station, NAU, Surat and Navsari Agricultural University, Navsari, Gujarat, India for providing facilities during research work.

Conflict of Interest. None.

REFERENCES

Badiyala, A. (2011). Seasonal incidence and management of cotton leaf roller, *Sylepta derogata* (Fabricius) infesting okra in Himachal Pradesh, India. *SAARC Journal of Agriculture*, *9*(2), 53-64.

Behera, U. K. (2018). Studies on population dynamics of major insect pests on *Bt* and non *Bt* cotton in Odisha and development of IPM modules for their effective management. *Thesis Ph.D.,* Orissa University of Agriculture and Technology, Bhubaneswar, Odisha. 175p.

Bhatnagar, P., Kandasamy, C. and Sharma, P. D. (1993). Incidence, biology and control of cotton leaf roller, *Sylepta derogata* F. *Pestology*, *17*(11), 7-10.

Boopathi, T., Pathak, K. A., Ngachan, S. V., Singh, B. K., Das, N. and Verma, A. K. (2011). Seasonal incidence of major insect pests on okra in Mizoram, India. *The Journal of Plant Protection Sciences*, *3*(1), 54-56.

Das, R., Saikia, D. K., Devee, A. and Ahmed, S. S. (2021). Succession of major pests and predators in okra, *Abelmoschus esculentus* (L.) Moench ecosystem. *International Journal of Current Microbiology and Applied Sciences, 10*(1), 2174-2183.

Gahramanova, G., Mamay, M. and Mammadov, Z. (2020). Biological characteristics and efficacy of *Bacillus thuringiensis* against the cotton leaf roller, *Sylepta derogata* (Fabricius) (Lepidoptera: Crambidae). *Egyptian Journal of Biological Pest Control, 30*(1), 1-7.

Ghosh, J., Ghosh, S. K., Chatterjee, H. and Senapati, S. K. (1999). Pest constraints of okra under terai region of West Bengal. *Indian Journal of Entomology*, *61*(1), 362-371.

Gujar, G. T., Kalia, V., Bunker, G. K. and Dhurua, S. (2010). Impact of different levels of non-*Bt* cotton refuges on pest populations, bollworm damage, and *Bt* cotton production. *Journal of Asia-Pacific Entomology, 13*, 249-253.

Hansda, A., Tudu, B. and Das, B. K. (2017). Studies on insect pests of malvaceous medicinal plants, *Abelmoschus* spp. under Southern West Bengal condition. *Indian Agriculturist*, *61*(3/4), 107-113.

Hiramatsu, A., Sakamaki, Y. and Kusigemati, K. (2001). A list of pest-insects feeding on the kenaf (*Hibiscus cannabinus*) in Kagoshima city (Japan) with seasonal abundance of some major pest-insects. In: *Bulletin of the Faculty of Agriculture Kagoshima University,* Japan, pp. 1-7.

Iyamu, J. I. (2012). Biology and ecology of the leaf roller (*Sylepta derogata* Fabricius) on okra (*Abelmoschus esculentus* (L.) Moench). *Thesis Ph.D.,* University of Ibadan, Ibadan. 72 p.

Karpun, N. N., Zhuravleva, E. N., Shoshina, E. I. and Kirichenko, N. I. (2022). The detection of an alien pest, the cotton leaf roller, *Haritalodes derogata* (Lepidoptera: Crambidae), on the black sea coast of Russia. *Far Eastern Entomologist*, *465*, 12-21.

Laxman, P., Samatha, C., Thirupati, U. and Sammaiah, C. (2014). Study on defoliator pests in *Bt*-cotton and non *Bt*-cotton fields in Warangal, Andhra Pradesh, India. *International Journal of Pharmacy and Biological Sciences*, *4*(1), 150-156.

Lok, N., Prasad, C. S., Tiwari, G. N. and Amit, K. (2011). Impact of weather parameters on major insect pests of okra prevailing western Uttar Pradesh. *Vegetos*, *24*(2), 152-156.

Mailafiya, D. M., Mari, J. B. and Yakubu, H. (2022). Preliminary survey of parasitism of leaf roller, *Sylepta derogata* (Fabricius) (Lepidoptera: Pyralidae) in roselle (*Hibiscus sabdariffa* L. (Malvales: Malvaceae) in Maiduguri, Nigeria. *Journal of Agricultural Economics, Environment and Social Sciences*, *8*(1), 82-89.

Manjunatha, R., Pradeep, S., Sridhara, S., Manjunatha, M., Naik, M. I., Shivanna, B. K. and Venkatesh, H. (2009). Comparative performance of *Bt* and non-*Bt* cotton against bollworm complex. *Karnataka Journal of Agricultural Sciences*, *22*(3), 646-647.

Mariselvi, S. and Manimegalai, K. (2016). Biochemical studies of cotton pest *Sylepta derogata* F. by Econeem, *Acorus calamus* and *Piper longum* extracts. *International Journal of Scientific and Research Publications*, *6*(1), 388-401.

Nair, N., Giri, U., Bhattacharjee, T., Thangjam, B., Paul, N. and Debnath, M. R. (2017). Biodiversity of insect pest complex infesting okra (*Abelmoschus esculentus*) in Tripura, N. E. India. *Journal of Entomology and Zoology Studies*, *5*(5), 1968-1972.

Naresh, V., Biswas, A. K., Roy, K. and Reza, M. W. (2003). Relative susceptibility of different varieties of okra to the shoot and fruit borer, *Earias vittella* (F.) and leaf roller, *Sylepta derogata* (F.). *Pest Management and Economic Zoology*, *11*(2), 119-122.

Ogbalu, O. K., Bob Manuel, R. B. and Gbarakoro, T. (2015). The role of *Sylepta derogata* (Lepidoptera: Pyralidae) in the abscission and defoliation of okra flowers, seeds and pods in monocrop gardens in Port Harcourt, Nigeria. *IOSR Journal of Pharmacy and Biological Sciences*, *10*(6), 134-138.

Pan, H. and Xiu, C. (2016). Population dynamics of leaf roller *Haritalodes derogata* (Fabricius) larvae on four Malvaceae plant species. *Chinese Journal of Biological Control*, *32*(6), 708-711.

Roy, D., Sarkar, P. K., Mondal, D. and Chakraborty, G. (2018). Role of abiotic factors on population build up of arthropod fauna in okra ecosystem under gangetic alluvial plain of West Bengal. *International Journal of Advanced Biological Research*, *8*(1), 13-17.

Roychoudhury, N., Chandra, S. and Joshi, K. C. (2009). *Haldina cordifolia* - A new host plant record for leaf roller, *Sylepta derogate* Fabricius (Lepidoptera: Pyralidae). *Annals of Forestry, 17*(1), 153-156.

Shivagaje, A., Kasture, M., Yadav, D. and Pandharikar, N. (2004). Cotton scenario in India. *Current Science, 87*(1), 8.

Yahaya (2008). Diagnostic survey of cotton fields in Funtua and its environs. Unpublished survey report submitted to the Fibre Unit of IAR Zaria, Nigeria.

How to cite this article: Dalsaniya N.S., Patel R.D., Bhanderi G.R., Desai H.R. and Rathod T.R. (2024). Seasonal Incidence of Leaf Roller, *Sylepta derogata* (Fabricius) in Cotton. *Biological Forum – An International Journal, 16*(4): 85-89.