

SEASONAL ABUNDANCE OF *Euchrysops cnejus* Fabricius ON PIGEONPEA

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ABSTRACT

Seasonal abundance of blue butterfly, *E. cnejus* revealed that the egg population appeared during fourth week of September (0.40 egg/twig), while the larval population initiated during first week of October (0.24 larva/twig). The egg and larva population were maximum (1.64 eggs/twig and 0.96 larva/twig, respectively) during the fifth week of October and second week of November, respectively. Thereafter, the population declined and disappeared at crop maturity. The damage due to blue butterfly appeared on buds, flowers during first week of October (5.42 % and 2.88 %, respectively), while the pod damage was recorded during third week of October (1.96 %). The peak period of infestation on bud and flower was observed during fourth week of October (20.35 % and 12.41 %, respectively), while in pod, it was during second week of November (9.92%). The larval population was significant and negatively correlated with the minimum relative humidity and minimum vapour pressure, whereas bud damage (%) was significant and negatively associated with minimum relative humidity.

KEY WORDS: Seasonal abundance, *Euchrysops cnejus* Fabricius, pigeonpea

INTRODUCTION

Pigeonpea crop is attacked by a number of insect pests, part from there effect due to fluctuation of environmental conditions. The degree of various environmental factors determines the magnitude of increase or decrease of numbers of a pest population. Major losses are caused by the pod borer complex during the reproductive stage of the crop. Among the pod borers, *Euchrysops cnejus* Fab. cause heavy damage to pods resulting in extensive loss in grain yield, the larvae feed on flowers, buds and developing grains inside the pods which leads to a considerable loss in yield. Grain infestation

by *E. cnejus* has been found to the extent of 40.37 per cent (Kapadia and Talati, 1983).

MATERIALS AND METHODS

Study was undertaken at the Centre of Excellence for Research on Pulses, SDAU, Sardarkrushinagar during *kharif* 2012-13 on GT 101 variety grown at 60 cm x 15 cm spacing. The plot size was 42 m x 4 m. The number of eggs and larvae of *E. cnejus* were recorded from 25 randomly selected twigs each of 25 cm length from pigeonpea field at weekly interval regularly starting from the appearance of the pest. The damage to buds, open flowers and green pods were recorded by counting the total and infested number of buds, flowers and

Pods available on twig. The initial damage was recorded immediately after the newly hatched minute larva entered either in the developed buds or flower corolla, and this was conspicuously marked by the presence

of hole on the corolla of flowers. In the pod damage holes were big size and encircled. Damage percentage was worked out and the data were correlated with meteorological parameters.

$$\text{Damaged buds/flowers/pods (\%)} = \frac{\text{No. of infested buds/flowers/pods}}{\text{Total number of buds/flowers/pods}} \times 100$$

RESULTS AND DISCUSSION

The larva alone was the direct damaging stage of the insect. The attack of the larvae commenced with the formation of buds, flowers and pods. The initial damage was done immediately after the newly hatched minute larva entered either in the developed buds or flower corolla, and this was conspicuously marked by the presence of hole on the corolla of flowers. It was observed that the larva feed on the internal contents including the pollen grains and corolla region of the flowers and usually moulted inside to second instar. Then the larva came out from the flowers in search of buds and the damaged buds dropped down. The full grown larva attacked pods of all stages and made ways inside by boring initially at the base of the pod. It thrust its body half way in and feeds on the grains. The larva reached to other seeds of the same pod by making separate holes. The infested pods were easily recognized by having one more holes. The holes were big size and encircled.

The data on egg population are presented in Table 1 revealed that the eggs started appearing in pigeonpea from the fourth week of September at bud initiation stage (0.40 Egg/twig). The incidence gradually increased up to fifth week of October and reached its peak by the end of October (1.64 eggs/twig). The population of eggs was observed up to 4th week of January. Chavda (2001) reported the activity of egg initiated during the fourth week of September and first week of October to the harvest of crop, while maximum at fifth week of October (1.35 eggs/twig). A perusal

of the data presented in Table 1 indicated that the incidence of larvae started appearing in pigeonpea from the first week of October. The peak period of the larvae of blue butterfly was at the second week of November (0.96 larva/twig). The population of the larvae was observed throughout the flowering and pod stage and continued till fourth week of January. Chavda (2001) reported the activity of larvae found most during second week of November (0.85 larva/twig).

The incidence of bud damage (Table 1) was initiated from the first week of October. The maximum (20.35%) bud damage was recorded during fourth week of October. The lowest (2.56%) bud damage was observed in the third week of January. According to Kapadia (1975), the maximum bud damage (21.30%) was recorded during October. The incidence of flower damage also appeared from the first week of October (Table 1). The maximum flower damage was recorded (12.41 %) during fourth week of October. Thereafter, per cent of flower damage reduced and reached to 6.61 per cent in second week of November. The lowest per cent flower damage was observed in the fourth week of December (2.09 %). The maximum flower damage (8.82 %) was recorded during October (Kapadia, 1975). A perusal of pod damage indicated that the incidence started from third week of October (Table 1). The maximum pod damage was recorded (9.92 %) during second week of November, which continued till the second week of January (0.61%).

The data on correlation study of oviposition behavior of *E. cnejus* with

weather parameters presented in Table 2 revealed that larval population of *E. cnejus* showed significant negative correlation with minimum relative humidity and minimum vapour pressure. The bud damage caused by *E. cnejus* was significantly and negatively correlated with the minimum relative humidity.

CONCLUSION

From the results and discussion, it can be seen that egg population of blue butterfly, *E. cnejus* appeared during fourth week of September (0.40 egg/twig), while the larval population initiated during first week of October (0.24 larva/twig). The egg and larva population were maximum (1.64 eggs/twig and 0.96 larva/twig, respectively) during the fifth week of October and second week of November, respectively. The peak period of infestation on bud and flower was observed during fourth week of October (20.35 % and 12.41 %, respectively), while in pod, it was during second week of November (9.92%). The larval population was significant and negatively correlated

with the minimum relative humidity and minimum vapour pressure, whereas bud damage (%) was significant and negatively associated with minimum relative humidity.

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Table 1: Seasonal abundance of *E. cnejus* on pigeonpea

Month and Week	Standard Week	Average Number per Twig		Damage (%)		
		Egg(s)	Larva(e)	Bud	Flower	Pod
September IV	39	0.40	0.00	0.00	0.00	0.00
October I	40	0.96	0.24	5.42	2.88	0.00
II	41	1.44	0.32	8.50	5.33	0.00
III	42	0.92	0.40	14.33	10.57	1.96
IV	43	1.16	0.76	20.35	12.41	4.16
V	44	1.64	0.48	16.28	10.80	3.72
November I	45	0.96	0.88	17.09	7.94	6.71
II	46	0.80	0.96	19.54	6.61	9.92
III	47	1.12	0.68	15.50	7.17	4.19
IV	48	0.92	0.60	14.20	9.63	2.54
December I	49	0.72	0.64	11.42	7.29	3.23
II	50	1.28	0.80	12.60	8.49	8.36
III	51	0.88	0.76	10.78	5.33	2.88
IV	52	0.80	0.68	9.37	2.09	1.90
V	1	0.76	0.64	10.83	4.31	1.69
January I	2	0.44	0.56	6.17	5.20	1.32
II	3	1.04	0.48	4.91	2.73	0.61
III	4	0.88	0.40	2.56	0.00	0.00
IV	5	0.28	0.16	0.00	0.00	0.00
V	6	0.00	0.00	0.00	0.00	0.00

Table 2: Correlation study of various weather parameters on *E. cnejus* on pigeonpea

Weather Factor	Temperature (°C)			Relative Humidity (%)			Vapour Pressure (mm of Hg)			Bright Sunshine (hours/day)	Evaporation (mm)	Rainfall (mm)
	Max	Min	Mean	Max	Min	Mean	Max.	Min.	Mean			
No. of eggs	0.42	0.23	0.32	0.30	-0.30	0.01	0.22	0.00	0.13	0.34	-0.25	0.21
No. of larvae	-0.11	-0.32	-0.23	0.15	-0.50*	-0.25	-0.39	-0.47*	-0.44	0.01	-0.13	0.05
Bud damage (%)	0.31	0.10	0.20	0.12	-0.58*	-0.33	-0.02	-0.27	-0.14	0.37	-0.23	0.23
Flower damage (%)	0.38	0.22	0.30	0.23	-0.44	-0.16	0.10	-0.13	-0.00	0.30	-0.20	0.27
Pod damage (%)	0.13	-0.01	0.05	0.24	-0.26	-0.02	-0.10	-0.18	-0.14	0.01	-0.34	-0.22

*Significant at 5 per cent levels of significance

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