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Population Dynamics of Mango Leaf Cutting Weevil (*Deporaus marginatus* Pascoe) in Relation to Abiotic Factors and Varietal Screening of Mango Mother Plants in Nursery

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ABSTRACT: Studies on population dynamics and varietal screening relevant to mango leaf cutting weevil (*Deporaus marginatus* Pascoe) were conducted in 2022 at Navsari Agricultural University, Gujarat, India. Mango mother plants and grafted plants were observed at a weekly interval. Infestation of *D. marginatus* on the young leaves of mango mother plants was recorded from the 21st to the 40th SMW. The population of *D. marginatus* in terms of 'number of eggs laid per leaf' on mango mother plants was recorded at its maximum (8.3 eggs/leaf) in the 32nd SMW. The population of *D. marginatus* in terms of 'per cent leaf damage' on mango mother plants was recorded at its maximum (18.39 %) in the 27th SMW. Infestation of *D. marginatus* on grafted plants of mango was recorded at its maximum (37.89 %) in the 33rd SMW. The population of *D. marginatus* was positively influenced by rainfall and relative humidity. The significantly highest infestation of *D. marginatus* was recorded in *Amrapali* (8.15 %) and *Alphonso* (7.12%). While the significantly least infestation was recorded in *Langra* (1.13%).

Keywords: Mango leaf cutting weevil, *Deporaus marginatus* Pascoe, Population dynamics, Varietal screening.

INTRODUCTION

Mango (*Mangifera indica* L.) is one of the most widely grown fruits in tropical and subtropical regions of the world. In India, the area under mango cultivation is 2350 thousand ha with a production of 20772 thousand MT (Anon., 2022). In Gujarat, the area under mango cultivation is 173517 ha with production of 960172MT (Anon., 2023).

The *Deporaus marginatus* Pascoe (Coleoptera: Curculionidae) is commonly known as the mango leaf cutting weevil, which is a pest of grafted plants and young orchards of mango. It is reported from India, Bangladesh, Pakistan, Myanmar, Sri Lanka, China and Malaysia (Rafiquzzaman *et al*., 1999; Uddin *et al*., 2003). Weevils of *D. marginatus* are reddish orange in color with shiny black elytra and possess a slender snout. Weevils cause damage to the new flushesof grafted and young mango plants by scrapping young leaves. Moreover, female weevil adults cut young leaves of mango from its base after depositing eggs singly in excavated small cavities on either side of the leaf midrib. Cut young leaves with deposited eggs within, falls down on soil (Tigvattnanont, 1988; Bhole and Dumbre 1990; Rafiquzzaman and Maiti 1998; Manjunath, 2004; Uddin *et al*., 2014; Anoop Kumar and Ghosh 2020).

In India, *D. marginatus*is reported to cause 53.9 to 57.4 per cent defoliation on grafted mango plants (Rafiquzzaman and Maiti 1999). Kumawat and Singh (2013) recorded infestation of *D. marginatus* from June to September. Reviews of the existing literature did not reveal much information on the extent of damage caused by *D. marginatus*. Thus, it is essential to study the population dynamics of *D. marginatus* in relation to abiotic factors, and the varietal screening of mango mother plants against *D. marginatus* to evolve suitable pest management strategies.

MATERIALS AND METHODS

A. Population dynamics of D. marginatus on mango mother plants in relation to abiotic factors in nursery

Ten mango mother plants (15 years old) of variety *Kesar* were selected and kept free from insecticidal spray at the open field Model Nursery, ASPEE College of Horticulture, Navsari Agricultural University, Navsari, Gujarat. Ten tender shoots per plant were selected and tagged. Plants were observed at weekly intervals from May to October, 2022 for the incidence of *D. marginatus* on young leaves. A study on population dynamics was carried out in terms of number of eggs laid per fallen leaf' and 'per cent leaf damage'.

To count the number of eggs laid, twenty fresh fallen cut leaves with eggs laid on them were collected at a

weekly interval from May to October, 2022. Collected fallen cut leaves were observed under a microscope and excavated small cavities with eggs inside were counted. To record per cent leaf damage, young leaves were observed at a weekly interval from May to October, 2022. The observations were tabulated as the total per cent infested leaves per ten selected tender shoots for each selected mother plant. Per cent infestation of *D. marginatus* on young leaves was obtained using formula,

Per cent infestation (%) =

$$\frac{\text{Total number of infested young leaves per shoot}}{\text{Total number of young leaves per shoot}} \times 100$$

In order to study the influence of weather parameters on the population dynamics of *D. marginatus*, the correlation coefficient (r) was worked out. Weekly meteorological data recorded at the Meteorological Observatory, Navsari Agricultural University, Navsari were accessed for particular aspect.

B. Population dynamics of D. marginatus on young grafted plants of mango in nursery

One hundred grafted plants of the variety *Sonpari* were selected (15 days after grafting) at Model Nursery, Agriculture Experimental Station, Navsari Agricultural University, Paria, Gujarat. Grafted plants were observed at a weekly interval from July to August, 2022 and the infestation of *D. marginatus* on young leaves was recorded. The observations were tabulated as the total per cent infested leaves per grafted plant. Per cent infestation of *D. marginatus* on young leaves was obtained using formula,

Per cent infestation (%) =

$$\frac{\text{Total number of infested young leaves per graft}}{\text{Total number of young leaves per graft}} \times 100$$

The aim of this particular study was to determine the maximum damage potential of *D. marginatus* during its peak infestation.

C. Varietal screening of mango mother plants against D. marginatus in nursery

Ten commercial mango varieties *viz*., *Alphonso*, *Kesar*, *Dasheri*, *Amrapali*, *Totapuri*, *Sonpari*, *Rajapuri*, *Ratna*, *Neelphonso* and *Langra* were selected as each treatment and kept free from insecticidal spray at the open field Model Nursery, ASPEE College of Horticulture, Navsari Agricultural University, Navsari, Gujarat. Six mango mother plants per treatment (two mother plants per replication, total three replications, Randomized Block Design) were selected and ten tender shoots per plant were tagged. Plants were observed at weekly interval from May to October, 2022 and the infestation of *D. marginatus* on the young leaves was recorded. The observations were tabulated as the total per cent infested leaves per ten shoots. Per cent infestation of *D. marginatus* on young leaves was obtained using formula,

Per cent infestation (%) =

$$\frac{\text{Total number of infested young leaves per shoot}}{\text{Total number of young leaves per shoot}} \times 100$$

RESULTS AND DISCUSSION

A. Population dynamics of D. marginatus on mango mother plants in relation to abiotic factors in nursery

The population of *D. marginatus* in terms of 'number of eggs laid per leaf' on mango mother plants was commenced on 22nd Standard Meteorological Week (fifth week of May) and reached its maximum (8.3 eggs/leaf) in the 32nd SMW (second week of August) [Table 1 and Fig. 1].

The population of *D. marginatus* in terms of 'per cent leaf damage' on mango mother plants included two kinds of leaf damage *viz*., leaf scrapping and leaf cutting damage [Table 1 and Fig. 2]. Leaf scrapping damage by weevils of both sexes was commenced on the 21st SMW (fourth week of May) and continued up to the 40th SMW (first week of October). Leaf scrapping infestation reached its maximum (6.87 %) in the 27thSMW (first week of July). Leaf cutting damage by female weevils was commenced on the 23rd SMW (first week of June) and continued up to the 40th SMW (first week of October). Leaf cutting infestation reached its maximum (12.83 %) in the 28th SMW (second week of July). Total per cent leaf damage (leaf scrapping + leaf cutting damage) had two peaks of infestation. The first peak during the 25th to 29th SMW (third week of June to third week of July) with a 10.52 to 18.39 per cent leaf damaging range. While the second peak during the 32nd to 33rd SMW (second to third week of August) with an 11.89 to 15.13 per cent leaf damaging range.

Rafiquzzaman and Maiti (1997) recorded an infestation of *D. marginatus* during July to August. Zhou *et al*. (1997) recorded two infestation peaks *viz*., the first peak during mid-May to mid-July and the second peak during mid-August to mid-October. Kumawat and Singh (2013) recorded infestation during June to September. According to Mukherjee *et al*. (2016), *D. marginatus* was more prevalent from June to October. Results are more or less similar to discussed reviews.

Correlation analysis (Table 2) revealed that 'egg population per leaf' and 'per cent leaf damage' showed highly significant and negative correlation with maximum temperature (r =−0.699** and−0.869**), average temperature (r = − 0.515** and − 0.696**), bright sunshine hours (r = − 0.696** and − 0.898**) and evaporation (r = − 0.586** and− 0.831**), respectively. However, it showed a highly significant and positive correlation with evening relative humidity (r = 0.692** and 0.896**) and average relative humidity (r = 0.681** and 0.904**), respectively. Also, 'Egg population per leaf' had a significant and positive correlation with morning relative humidity (r = 0.495*) and rainfall (r = 0.460*). Whereas, 'per cent leaf damage' had a highly significant and positive correlation with morning relative humidity (r = 0.708**) and rainfall (r =0.750**).

Rafiquzzaman and Maiti (1997) reported that relative humidity, rainfall and temperature influenced the infestation of *D. marginatus*. Manjunath (2004) reported a significant and positive correlation with rainfall and relative humidity; significant and negative

correlation with maximum temperature. Kumawat and Singh (2013) found a positive correlation with rainfall and relative humidity. Results show similarity with discussed reviews.

B. Population dynamics of D. marginatus on young grafted plants of mango in nursery

Leaf infestation on grafted plants was reached its maximum during the 33rd SMW (third week of August) with 14.24 per cent leaf scrapping damage and 23.65 per cent leaf cutting damage (Table 3 and Fig. 3). At that point, total of 37.89 per cent leaf damage potential by *D. marginatus* on grafted plants was observed.

D. marginatus reported to cause 53.9 to 57.4 per cent defoliation on grafted mango plants (Rafiquzzaman and Maiti 1999). Mukherjee *et al*. (2016) revealed that the development of *D. marginatus* was synchronized with the initiation of new leaves on grafted young plants in the nursery and recorded peak infestation in 31st SMW. More or less similar results were found in the present study. While the difference in damage potential might be due to the varietal preference of *D. marginatus*.

C. Varietal screening of mango mother plants against D. marginatus in nursery

Screening of ten selected mango varieties revealed that the infestation was commenced on 22nd SMW (fifth week of May) on two varieties *viz*., *Alphonso* (1.72 %) and *Amrapali* (2.52 %) (Table 4 and Fig. 4). Infestation continued up to the 40th SMW (first week of October). A comparatively high infestation on all ten varieties was recorded during the 27th to 29th SMW (first to third week of July). Looking at pooled data, the significantly least infestation was recorded in *Langra* (1.13%) followed by *Totapuri* (2.18%), which was at par with *Rajapuri* (2.38%) and *Ratna* (2.63%). The next best variety in terms of lower leaf damage was *Sonpari* (3.01%) followed by *Neelphonso* (4.31%). The significantly highest infestation was recorded in *Amrapali* (8.15%) which was statistically at par with *Alphonso* (7.12%).

Rafiquzzaman *et al*. (1999) recorded the highest infestation of *D. marginatus* in *Amrapali* (53.9 to 57.4%). Whereas, Uddin *et al*. (2003) recorded the least infestation in *Langra* (13.78%) and the highest infestation in *Amrapali* (52.55%). Manjunath (2004) recorded the highest infestation on *Bangalora* (25.29%) and *Alphonso* (24.35%). Kumawat and Singh (2013) recorded the highest incidence of *D. marginatus* in Mallika (88.96%) and Alphonso (81.78%) from June to September. More or less similar results in terms of varietal susceptibility were observed during the present study. Whereas, the difference in the level of infestation during the present study as compared to discussed studies, might be due to the difference in climatic conditions of research locations.

Table 1: Population dynamics of *D. marginatus* in terms of 'number of eggs laid per leaf' and 'per cent leaf damage' on mango mother plants during May to October, 2022.

Sr. No.	SMW	Week period	Mean No. of eggs laid per fallen cut leaf	Mean leaf damage / shoot (%)		
				Leaf scrapping	Leaf cutting	Total leaf damage
1.	18	30 April - 6 May	0.00	0.00	0.00	0.00
2.	19	7 - 13 May	0.00	0.00	0.00	0.00
3.	20	14 - 20 May	0.00	0.00	0.00	0.00
4.	21	21 - 27 May	0.00	0.42	0.00	0.42
5.	22	28 May - 3 June	0.26	0.54	0.00	0.54
6.	23	4 - 10 June	0.50	0.71	1.43	2.14
7.	24	11 - 17 June	0.55	1.59	3.76	5.35
8.	25	18 - 24 June	0.60	3.39	8.84	12.23
9.	26	25 June - 1 July	0.90	4.14	6.38	10.52
10.	27	2 - 8 July	1.45	6.87	11.52	18.39
11.	28	9 - 15 July	3.75	4.61	12.83	17.44
12.	29	16 - 22 July	5.75	3.46	9.32	12.78
13.	30	23 - 29 July	6.60	2.72	6.83	9.55
14.	31	30 July - 5 August	8.00	3.21	6.41	9.62
15.	32	6 - 12 August	8.30	4.14	7.75	11.89
16.	33	13 - 19 August	7.30	4.73	10.4	15.13
17.	34	20 - 26 August	6.50	2.48	7.37	9.85
18.	35	27 August - 2 September	4.65	2.04	4.32	6.36
19.	36	3 - 9 September	3.55	1.18	2.67	3.85
20.	37	10 - 16 September	3.20	2.93	6.78	9.71
21.	38	17 - 23 September	2.25	2.17	7.73	9.9
22.	39	24 - 30 September	1.35	1.64	5.32	6.96
23.	40	1 - 7 October	1.10	0.32	1.25	1.57
24.	41	8 - 14 October	0.65	0.00	0.00	0.00
25.	42	15 - 21 October	0.35	0.00	0.00	0.00
26.	43	22 - 28 October	0.20	0.00	0.00	0.00

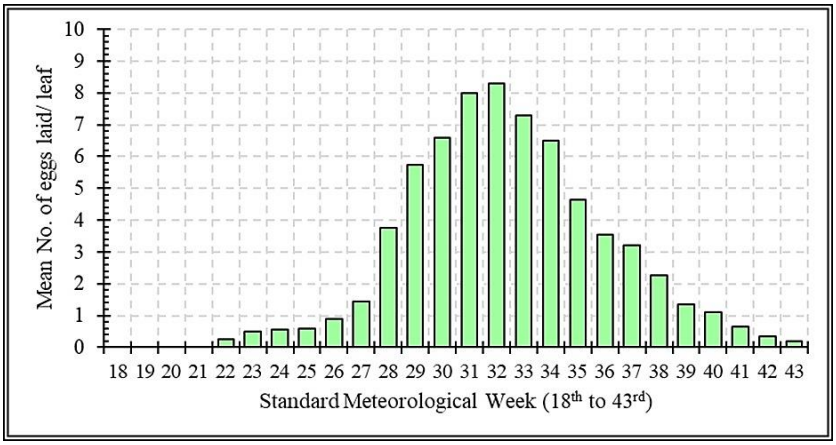

Fig. 1. Population dynamics of *D. marginatus* in terms of 'number of eggs laid per fallen cut leaf' on mango mother plants during May to October, 2022.

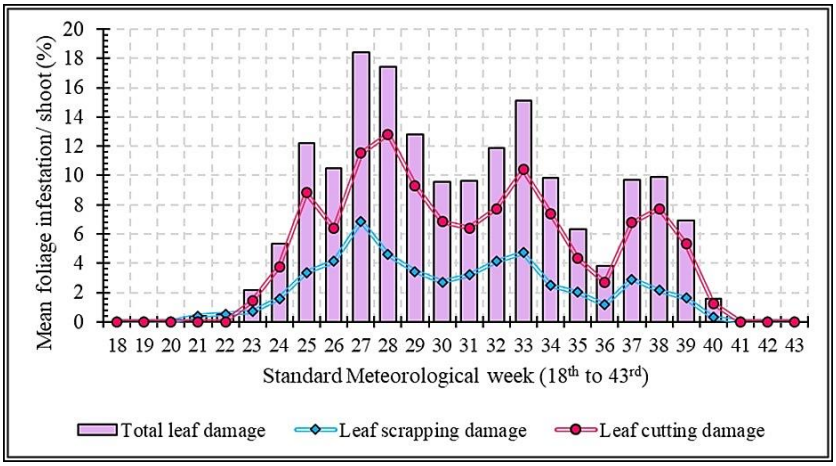

Fig. 2. Population dynamics of *D. marginatus* in terms of 'per cent leaf damage' on mango mother plants during May to October, 2022.

Table 2: Correlation between population of *D. marginatus* and weather parameters.

Sr. No.	Weather parameter	Correlation coefficient (r)	
		Mean No. of eggs laid per leaf	Mean leaf damage (%)
1.	Maximum temperature (ºC)	−0.699**	−0.869 **
2.	Minimum temperature (ºC)	−0.059 ^{NS}	−0.172^{NS}
3.	Average temperature (ºC)	−0.515**	−0.696**
4.	Morning relative humidity (%)	0.495*	0.708 **
5.	Evening relative humidity (%)	0.692**	0.896 **
6.	Average relative humidity (%)	0.681**	0.904**
7.	Wind speed (km/h)	0.055 ^{NS}	0.060^{NS}
8.	Bright sunshine hours (h)	−0.696**	−0.898 **
9.	Rainfall (mm)	0.460*	0.750 **
10.	Evaporation (mm/day)	−0.586**	−0.831 **
Note: n = 26, NS - Non-Significant,			
* - Significant at 5% level of significance, ** - Highly significant at 1% level of significance			

Table 3: Population dynamics of *D. marginatus* on grafted plants of mango during July to August, 2022.

Sr. No.	SMW	Week period	Mean leaf damage / grafted plant (%)		
			Leaf scraping	Leaf cutting	Total leaf damage
1.	27	2-8 July	3.24	7.25	10.49
2.	28	9-15 July	4.67	10.34	15.01
3.	29	16-22 July	6.38	13.56	19.94
4.	30	23-29 July	8.23	16.32	24.55
5.	31	30 July -5 August	9.88	18.34	28.22
6.	32	6-12 August	12.32	21.20	33.52
7.	33	13-19 August	14.24	23.65	37.89
8.	34	20-26 August	10.54	20.15	30.69
9.	35	27 August-2 September	6.34	15.20	21.54

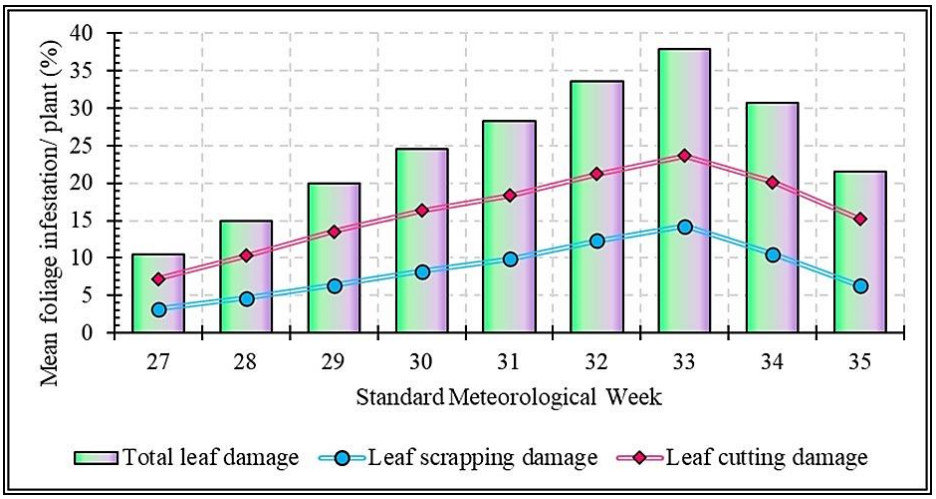

Fig. 3. Population dynamics of *D. marginatus* on grafted plants of mango during July to August, 2022.

Table 4: Infestation of *D. marginatus* on mother plants of screened mango varieties during May to October, 2022.

Treatment	Standard Meteorological Week-wise mean leaf infestation (%)													
	18	19	20	21	22	23	24	25	26	27	28	29	30	31
T_1: Alphonso	0.71^{a} (0.00)	0.71^{a} (0.00)	0.71^{a} (0.00)	0.71^{a} (0.00)	1.48^{b} (1.72)	2.30^{d} (4.80)	3.07^{d} (8.95)	3.67^{d} (12.97)	3.25^{ef} (10.12)	4.03^{d} (15.77)	4.32^{ef} (18.20)	4.21^{e} (17.30)	3.71^{d} (13.27)	3.15^{d} (9.43)
T_2: Kesar	0.71^{a} (0.00)	0.71^{a} (0.00)	0.71^{a} (0.00)	0.71^{a} (0.00)	0.71^{a} (0.00)	1.34^{c} (1.32)	2.51^{c} (5.83)	3.05^{c} (8.80)	2.74^{d} (7.03)	3.36^{c} (10.85)	3.79^{cd} (13.93)	3.30^{cd} (10.45)	3.12^{c} (9.30)	2.59^{c} (6.25)
T_3: Dasheri	0.71^{a} (0.00)	0.71^{a} (0.00)	0.71^{a} (0.00)	0.71^{a} (0.00)	0.71^{a} (0.00)	1.39^{c} (1.48)	2.66^{c} (6.60)	3.23^{c} (9.97)	2.88^{de} (7.85)	3.57^{c} (12.28)	3.91^{de} (14.85)	3.74^{d} (13.53)	3.23^{c} (10.00)	2.72^{c} (6.90)
T_4: Amrapali	0.71^{a} (0.00)	0.71^{a} (0.00)	0.71^{a} (0.00)	0.71^{a} (0.00)	1.72^{c} (2.52)	2.51^{d} (5.82)	3.29^{d} (10.38)	3.93^{d} (14.93)	3.54^{f} (12.08)	4.13^{d} (16.62)	4.60^{f} (20.80)	4.35^{e} (18.50)	3.97^{d} (15.30)	3.43^{d} (11.30)
T_5: Totapuri	0.71^{a} (0.00)	0.71^{a} (0.00)	0.71^{a} (0.00)	0.71^{a} (0.00)	0.71^{a} (0.00)	0.71^{a} (0.00)	1.68^{ab} (2.40)	2.21^{ab} (4.43)	2.06^{b} (3.80)	2.46^{b} (5.63)	2.95^{ab} (8.28)	2.55^{ab} (6.10)	2.25^{ab} (4.60)	1.77^{ab} (2.67)
T_6: Sonpari	0.71^{a} (0.00)	0.71^{a} (0.00)	0.71^{a} (0.00)	0.71^{a} (0.00)	0.71^{a} (0.00)	1.05^{b} (0.62)	1.97^{b} (3.47)	2.47^{b} (5.67)	2.32^{bc} (4.91)	2.75^{b} (7.13)	3.37^{bc} (10.87)	2.98^{bc} (8.43)	2.58^{b} (6.23)	2.04^{b} (3.70)
T_7: Rajapuri	0.71^{a} (0.00)	0.71^{a} (0.00)	0.71^{a} (0.00)	0.71^{a} (0.00)	0.71^{a} (0.00)	0.71^{a} (0.00)	1.75^{b} (2.60)	2.27^{b} (4.70)	2.11^{bc} (3.98)	2.58^{b} (6.20)	3.10^{b} (9.13)	2.63^{b} (6.47)	2.32^{b} (4.93)	1.83^{b} (2.90)
T_8: Ratna	0.71^{a} (0.00)	0.71^{a} (0.00)	0.71^{a} (0.00)	0.71^{a} (0.00)	0.71^{a} (0.00)	0.71^{a} (0.00)	1.85^{b} (3.00)	2.35^{b} (5.05)	2.19^{bc} (4.37)	2.64^{b} (6.53)	3.18^{b} (9.67)	2.74^{b} (7.07)	2.45^{b} (5.57)	1.95^{b} (3.33)
T_9: Neelphonso	0.71^{a} (0.00)	0.71^{a} (0.00)	0.71^{a} (0.00)	0.71^{a} (0.00)	0.71^{a} (0.00)	1.26^{bc} (1.13)	2.40^{c} (5.32)	2.90^{c} (7.98)	2.53^{cd} (5.93)	3.24^{c} (10.02)	3.71^{cd} (13.28)	3.52^{d} (11.90)	3.03^{c} (8.72)	2.45^{c} (5.53)
T_{10}: Langra	0.71^{a} (0.00)	0.71^{a} (0.00)	0.71^{a} (0.00)	0.71^{a} (0.00)	0.71^{a} (0.00)	0.71^{a} (0.00)	1.28^{a} (1.17)	1.73^{a} (2.53)	1.58^{a} (2.05)	1.93^{a} (3.28)	2.43^{a} (5.47)	2.05^{a} (3.73)	1.79^{a} (2.73)	1.39^{a} (1.45)
SEm (±)	**0.00**	**0.00**	**0.00**	**0.00**	**0.07**	**0.09**	**0.12**	**0.14**	**0.13**	**0.14**	**0.16**	**0.15**	**0.14**	**0.12**
CD at 5%	**NS**	**NS**	**NS**	**NS**	**0.21**	**0.26**	**0.37**	**0.42**	**0.40**	**0.43**	**0.49**	**0.45**	**0.41**	**0.35**
CV (%)	**0.00**	**0.00**	**0.00**	**0.00**	**13.56**	**12.18**	**9.51**	**8.90**	**9.26**	**8.10**	**8.03**	**8.15**	**8.44**	**8.73**

Note: Figures in parentheses are original values, while outside are $\sqrt{X+0.5}$ transformed values. Treatment means followed by the same letter(s) within a column are not significantly different by Duncan's New Multiple Range Test (DNMRT) at 5% level of significance.

Table 4 continue…

Treatment	Standard Meteorological Week-wise mean leaf infestation (%)												Pooled
	32	33	34	35	36	37	38	39	40	41	42	43	
T_1: Alphonso	3.50^{d} (11.77)	4.08^{d} (16.20)	3.42^{d} (11.23)	2.81^{de} (7.43)	2.50^{d} (5.77)	2.94^{d} (8.17)	2.72^{d} (6.88)	2.02^{c} (3.63)	1.37^{cd} (1.40)	0.71^{a} (0.00)	0.71^{a} (0.00)	0.71^{a} (0.00)	2.76^{f} (7.12)
T_2: Kesar	2.93^{c} (8.12)	3.31^{c} (10.50)	2.73^{c} (6.98)	2.25^{c} (4.57)	1.93^{c} (3.25)	2.38^{c} (5.20)	2.15^{c} (4.13)	1.81^{c} (2.80)	1.25^{bcd} (1.12)	0.71^{a} (0.00)	0.71^{a} (0.00)	0.71^{a} (0.00)	2.26^{de} (4.63)
T_3: Dasheri	3.07^{c} (8.95)	3.56^{c} (12.23)	2.86^{c} (7.70)	2.41^{cd} (5.33)	2.06^{c} (3.80)	2.50^{c} (5.73)	2.26^{c} (4.63)	1.92^{c} (3.23)	1.32^{bcd} (1.25)	0.71^{a} (0.00)	0.71^{a} (0.00)	0.71^{a} (0.00)	2.40^{e} (5.24)
T_4: Amrapali	3.79^{d} (13.87)	4.32^{d} (18.18)	3.62^{d} (12.63)	3.02^{e} (8.63)	2.76^{d} (7.13)	3.16^{d} (9.53)	2.87^{d} (7.73)	2.13^{c} (4.05)	1.53^{d} (1.87)	0.71^{a} (0.00)	0.71^{a} (0.00)	0.71^{a} (0.00)	2.94^{f} (8.15)
T_5: Totapuri	2.12^{b} (4.02)	2.44^{b} (5.50)	1.92^{b} (3.20)	1.41^{ab} (1.53)	1.16^{b} (0.87)	1.48^{b} (1.72)	1.24^{b} (1.10)	1.10^{ab} (0.73)	0.71^{a} (0.00)	0.71^{a} (0.00)	0.71^{a} (0.00)	0.71^{a} (0.00)	1.64^{b} (2.18)
T_6: Sonpari	2.37^{b} (5.17)	2.79^{b} (7.33)	2.20^{b} (4.40)	1.64^{b} (2.23)	1.42^{b} (1.53)	1.76^{b} (2.67)	1.56^{b} (1.98)	1.34^{b} (1.32)	1.04^{b} (0.58)	0.71^{a} (0.00)	0.71^{a} (0.00)	0.71^{a} (0.00)	1.87^{c} (3.01)
T_7: Rajapuri	2.20^{b} (4.35)	2.56^{b} (6.10)	1.99^{b} (3.52)	1.48^{ab} (1.75)	1.24^{b} (1.10)	1.53^{b} (1.90)	1.36^{b} (1.42)	1.17^{b} (0.92)	0.71^{a} (0.00)	0.71^{a} (0.00)	0.71^{a} (0.00)	0.71^{a} (0.00)	1.70^{bc} (2.38)
T_8: Ratna	2.30^{b} (4.82)	2.65^{b} (6.60)	2.08^{b} (3.83)	1.56^{b} (1.98)	1.33^{b} (1.33)	1.65^{b} (2.30)	1.45^{b} (1.67)	1.28^{b} (1.17)	0.71^{a} (0.00)	0.71^{a} (0.00)	0.71^{a} (0.00)	0.71^{a} (0.00)	1.77^{bc} (2.63)
T_9: Neelphonso	2.78^{c} (7.27)	3.23^{c} (9.97)	2.63^{c} (6.43)	2.10^{c} (3.93)	1.81^{c} (2.83)	2.25^{c} (4.57)	2.02^{c} (3.63)	1.75^{c} (2.60)	1.17^{bc} (0.95)	0.71^{a} (0.00)	0.71^{a} (0.00)	0.71^{a} (0.00)	2.19^{d} (4.31)
T_{10}: Langra	1.66^{a} (2.30)	1.84^{a} (2.93)	1.26^{a} (1.17)	1.04^{a} (0.58)	0.71^{a} (0.00)	0.71^{a} (0.00)	0.71^{a} (0.00)	0.71^{a} (0.00)	0.71^{a} (0.00)	0.71^{a} (0.00)	0.71^{a} (0.00)	0.71^{a} (0.00)	1.28^{a} (1.13)
SEm (±)	**0.13**	**0.15**	**0.13**	**0.14**	**0.12**	**0.12**	**0.14**	**0.12**	**0.09**	**0.00**	**0.00**	**0.00**	**0.06**
CD at 5%	**0.38**	**0.43**	**0.39**	**0.41**	**0.36**	**0.35**	**0.40**	**0.35**	**0.26**	**NS**	**NS**	**NS**	**0.19**
CV (%)	**8.19**	**8.16**	**9.25**	**12.11**	**12.25**	**10.13**	**12.83**	**13.43**	**14.30**	**0.00**	**0.00**	**0.00**	**5.35**

Note: Figures in parentheses are original values, while outside are $\sqrt{X+0.5}$ transformed values. Treatment means followed by the same letter(s) within a column are not significantly different by Duncan's New Multiple Range Test (DNMRT) at 5% level of significance.

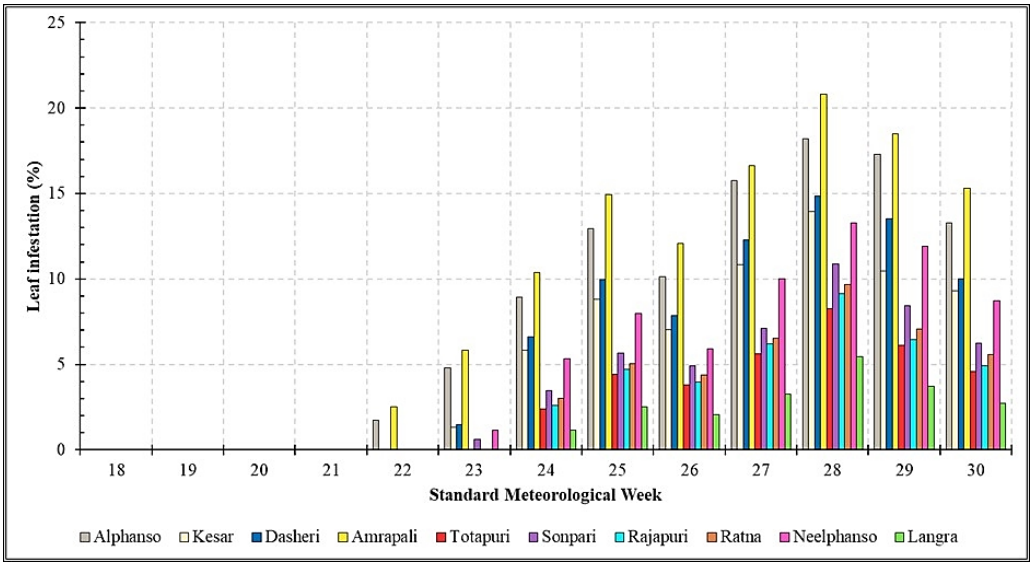

Fig. 4. Infestation of *D. marginatus* on mother plants of screened mango varieties during May to October, 2022.

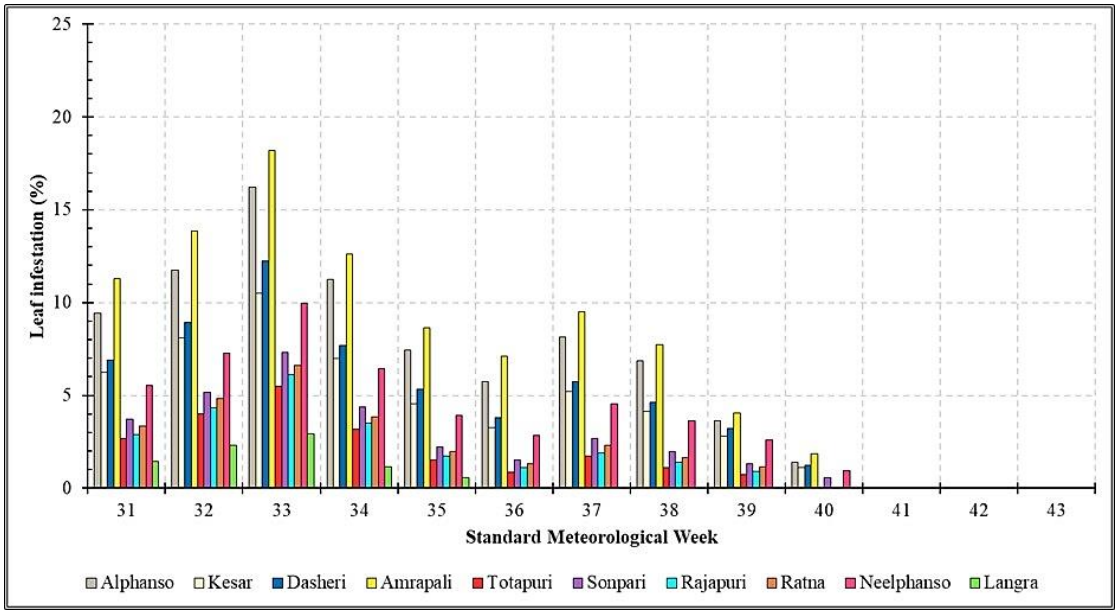

Fig. 4. continue…

CONCLUSIONS

Based on results from studies, it can be concluded that the mango leaf cutting weevil (*Deporaus marginatus* Pascoe) is a pest of grafted and young plants of mango as it causes damage to the young leaves (new flushes). Infestation of *D. marginatus* can be observed during the rainy season due to the positive influence of rainfall and humidity. The *D. marginatus* prefers varieties *viz*., *Amrapali* and *Alphonso* over the least susceptible *Langra*.

FUTURE SCOPE

The damage extent and varietal susceptibility of *D. marginatus* from the present study will help to carry out successive studies related to management strategies against *D. marginatus* in the future.

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Conflict of Interest. None.

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