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Importance of mass trapping of fruit flies in mango orchard through 'Rakshak' fruit fly trap

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Abstract
The oriental fruit fly, *Bactrocera dorsalis* Hendel (Diptera: Tephritidae) is an important pest of mango which limits the export of mango from one country to another. The experiments was conducted at Regional Fruit Research Station, Vengurla (Dr. B. S. Konkan Krishi Vidyapeeth, Dapoli, M. S.) during 2002 to 2017 by installing 'Rakshak' fruit fly traps in mango orchards @ 4 traps/ha for mass trapping of fruit flies. The results revealed that there was fruit fly catch in 'Rakshak' trap throughout the year, however, the peak incidence period was May-June. During the initial years (2002 to 2005) the fruit fly catch was very high (>1000/trap/week), which further declined continuously from 2006 onwards to 242.25/trap/week during 2017 due to the continuous mass trapping.
The overall results indicate that for management of mango fruit fly, the mass trapping with 'Rakshak' fruit fly trap developed by Dr. B. S. Konkan Krishi Vidyapeeth, Dapoli is very effective.

Keywords: Fruit fly, *Bactrocera dorsalis*, mass trapping, methyl eugenol, Rakshak trap

Introduction
The oriental fruit fly, *Bactrocera dorsalis* Hendel (Diptera: Tephritide) is a major pest of mango found worldwide [1-4]. It is an important pest which limits the export of mango from one country to another due to the strong quarantine protocols set up by different countries against fruit fly [5-9].
The adult fly of *B. dorsalis* is a medium size Dipteran fly measuring about 6 to 8 mm long, blackish orange coloured having presence of a pair of antennal spot, thorax is dark colured with two parallel lateral post-sututral vittae but is distinct in possessing a short ovipositor, a narrow costal band confluent with vein R_{2+3} [10]. The female fly lay eggs beneath the rind of the fruits by inserting strong ovipositor. The eggs hatch in 3-5 days and the maggots feed on the inner pulp. The maggots are whitish coloured, slender, 4 to 5 mm long. The maggots feed on the ripening fruit pulp, as a result there is decaying of fruits which fall down on the ground. The maggot period is 12-14 days. The full grown maggots come out from the infested fruit and pupates in soil. The pupal period is 5-7 days [11].
Usually the peak period of mango fruit fly in Konkan region is May to July [11]. However, the fruit fly population is observed through out year in fruit fly trap due to the availability of alternate host plants. Therefore, to reduce the male fruit fly population in nature, it is suggested to install methyl eugenol based fruit fly traps in mango orchard [7, 4, 6, 12, 9]. A recommendation of installation of 'Rakshak' fruit fly traps @ 4/ha in mango orchard was given by Dr. BSKKV, Dapoli, M.S.
The study was conducted with the objective of mass trapping of fruit flies in order to eradicate the pest.

Materials and Methods
The experiment was conducted at mango farm of Regional Fruit Research Station, Vengurla (Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth) during 2002 to 2017. As per the recommendation of Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli, for management of mango fruit fly four 'Rakshak' fruit fly traps/ha. were installed in mango orchards of Regional Fruit Research Station, Vengurla. The traps were installed in almost all the mango plots of RFRS, Vengurla from mass trapping point of view and the traps were recharged at monthly interval with methyl eugenol. 'Rakshak' fruit fly trap is a trap made up of plastic in which 3 ml methyl eugenol is used as an attractant for male flies [11]. Out of these traps, four traps were selected randomly for recording observations on the number of fruit flies

trapped. The observations on fruit flies trapped were recorded at weekly interval throughout the year. The observations were recorded continuously from January 2002 till December 2017. The data, thus generated were converted into number of fruit flies per trap per week.

The correlation coefficient (r) between the fruit fly catch and aboitic factors like prevailing weather parameters *viz.*, maximum temperature, minimum temperature, morning relative humidity, evening relative humidity and rainfall was worked out by using following formula:

Correlation coefficient

$$r_{xy} = \frac{\sum xy - \frac{\sum x \sum y}{n}}{\sqrt{\left[\sum x^2 - \frac{(\sum x)^2}{n}\right]\left[\sum y^2 - \frac{(\sum y)^2}{n}\right]}}$$

Where,

r_{xy} = Simple correlation coefficient

x = Variable i.e. abiotic component

y = Variable i.e. mean pest population

n = No. of observations.

Results and Discussion

A. Mass trapping

The mean data on number of fruit flies trapped per trap per week from January 2002 to December 2017 is presented in Table 1. From the data, it is evident that the fruit flies were trapped in traps throughout the year. However, from the mean data of 2002 to 2017, it is evident that, the maximum number of fruit flies (>400 fruit flies/ trap/week) were trapped during the fruit ripening period of mango i.e. May to June.

During the initial years (2002 to 2005) very high number of fruit flies (> 1000/trap/week) were trapped during the peak period. The maximum number of fruit flies (2631.25/trap/week) were trapped during first week of June, 2002, whereas, in the year 2003, it was 1909.25/trap/week during fourth week of May. Similarly, during 2004 the peak (1508.00/trap/week) was observed during fourth week of May. Whereas, during 2005, the peak fruit fly catch (1004.75/trap/week) was recorded during 4th week of June. This indicate that the fruit fly catch was very high during 2002 to 2005 ranging from 1004.75 to 2631.25/ trap/week during peak period.

During the year 2006, the peak fruit fly catch of 663.00/trap/week was observed in the first week of June, 2006 which further declined to 543.25 during first week of June 2007. During 2008, the peak was slightly higher than the previous year (603.50/ trap/week). Again from the year 2009, the continuous decline in peak population was recorded. During 2009, a peak fruit fly catch of 531.00 was recorded in the last week of July 2009. During 2010, 2011 and 2012 the peak fruit fly catch was 502.75, 408.75 and 402.50 which was recorded in the month of June. The peak fruit fly catch was further declined to 254.00/trap/week during 2013 and 2014 and the peak was recorded in the 3rd week of May. Further, from 2015 to 2017 the peak fruit fly catch was found more or less stable ranging from 242.25 to 292.50. During 2015, it was 295.50 which further reduced to 292.50 and 242.25 during 2016 and 2017, respectively. The peak period of fruit fly catch ranged between 3rd week of May to last week of July.

The overall results indicated that due to the mass trapping, the peak fruit fly population was decreased continuously from 2002 onwards. Initially during 2002 the peak fruit fly catch was 2631.25/trap/week which declined more or less continuously to 242.25/ trap/week during the year 2017.

These results are in conformity with Vergese *et al.* (2011) [13] who reported the importance of methyl eugenol based cost effective parapheromone traps in IPM. Also, Steiner (1952), Cunningham and Sudha (1986), Hui and Jianhong (2007), Munj *et al*. (2013), Nan *et al.* (2014), Bansode and Patel (2018), Nankinga *et al.* (2014), Khosravi *et al*. (2018, [14, 15, 7, 11, 6, 4, 16, 17] reported methyl eugenol traps as an important tool for mass trapping of mango fruit flies.

Similar observations were recorded by Bansode and Patel (2018) [16] in Gujarat; they reported continuous fruit fly catch in methyl eugenol trap throughout the year. Also, they reported the peak activity of fruit fly during 1st week of April to last week of July. Similarly, Patel *et al.* (2013) and Bana *et al.* (2017) [18, 19] reported peak fruit fly activity in methyl eugenol traps during fruiting and harvesting period i.e. April to July in Gujarat. Whereas, Kumar *et al.* (1997) [20] reported peak fruit fly activity during March to June in South Gujarat and Das *et al.* (2017) [21] reported the period of April to May as peak activity period of fruit fly in West Bengal.

The present finding are more or less in confirmation with Hui and Jianhong (2007) [7] who reported peak incidence of fruit fly during March to July in China. Anjum *et al*. (2000) [22] reported peak fruit fly population during 1st week of July in Faisalabad. Akhila (2015) [23] reported peak incidence of fruit fly in the month of June in Kerala. Also, Bansode and Patel (2018) [16] reported peak incidence of fruit fly during April to July in Gujarat. Sumathi *et al*. (2019) [9] reported peak fruit fly catch (839.1 fruit flies/ trap) in the month of July in Tamil Nadu.

During the present investigation minimum fruit fly activity (< 100/trap/week) (Table 2) was recorded during January-February. Similar results were reported by Bansode and Patel (2018) [16] in Gujrat and Mann (1996) [24] in Punjab. They reported minimum fruit fly activity during winter months. Hui and Jianhong (2007) [7] reported minimum fruit fly population during November to February in China. Sumathi *et al*. (2019) [9] reported less fruit fly population in traps during January to April in Tamil Nadu.

B. Correlation Studies

The data on average number of fruit flies trapped in 'Rakshak' trap and corresponding weather parameters (average data of 2002 to 2017) and the correlation coefficient are presented in Table 2 and 3, respectively. The data revealed that there is significant positive correlation between fruit fly population and the minimum temperature, evening relative humidity and rainfall and there is significant negative correlation with morning relative humidity.

Similar results were reported by Akhila (2015) [23] who reported significant positive correlation with fruit fly population and maximum temperature and average relative humidity. Also, Umesh Kumar *et al.* (2018) [12] reported significant positive correlation with maximum and minimum temperature, average relative humidity and rainfall.

Table 1: Average population of mango fruit fly/ trap/ week (2002 to 2017)

M. W.	Period	Fruit fly population /trap/week																Mean
		2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	
1	01-07 Jan.	26.00	15.00	15.75	19.50	18.00	26.50	30.00	94.75	242.50	163.00	92.50	129.00	110.00	9.50	64.75	40.50	68.58
2	08-14 Jan.	32.00	26.75	20.00	30.70	14.75	34.50	28.25	107.50	326.00	148.50	77.25	100.50	90.50	6.25	79.50	42.50	72.84
3	15-21 Jan.	21.00	24.25	17.00	45.50	21.75	26.25	33.75	97.00	261.75	152.50	102.25	125.25	115.50	8.50	64.50	48.25	72.81
4	22-28 Jan.	17.00	32.75	20.25	49.25	31.25	45.25	43.50	68.25	239.00	165.25	98.50	109.00	127.00	7.75	155.50	64.50	79.63
5	29-04 Feb.	23.75	46.75	23.00	35.00	54.00	51.75	55.00	128.50	196.00	175.75	107.25	101.00	95.25	6.50	145.50	81.75	82.92
6	05-11 Feb.	24.50	78.00	45.25	23.75	55.00	59.50	61.25	144.25	221.75	150.25	110.75	106.25	90.25	6.00	107.50	77.50	85.11
7	12-18 Feb.	111.25	82.25	98.00	29.00	56.50	42.75	87.25	97.50	228.75	92.00	85.25	81.75	110.50	4.75	123.50	87.25	88.64
8	19-25 Feb.	109.50	80.00	110.75	16.50	58.25	56.50	55.50	65.25	243.50	101.50	80.25	97.25	85.00	5.75	89.50	107.25	85.14
9	26-03 Mar.	147.00	75.00	95.00	25.50	98.75	43.50	42.75	64.00	287.00	112.50	110.50	101.50	112.00	9.50	111.75	108.00	96.52
10	04-10 Mar.	137.75	158.75	104.25	27.00	95.75	24.75	35.25	78.50	238.75	126.50	90.75	196.25	140.00	36.75	58.75	112.25	103.88
11	11-17 Mar.	139.75	153.50	107.50	82.50	95.75	32.50	52.50	98.25	256.25	120.25	110.75	155.25	198.00	47.25	62.00	122.50	114.66
12	18-24 Mar.	129.75	315.75	181.00	73.75	124.00	28.50	34.25	168.50	246.25	141.50	121.25	132.00	222.00	64.25	57.50	137.25	136.09
13	25-31 Mar.	116.50	466.50	269.50	58.75	169.25	53.75	77.00	131.25	182.50	130.25	101.25	179.25	231.50	68.75	47.75	138.50	151.39
14	01-07 Apr.	110.50	500.00	220.25	123.25	151.25	54.75	104.25	210.50	306.00	130.75	140.25	162.00	162.00	98.25	89.25	132.50	168.48
15	08-14 Apr.	144.00	515.75	239.00	135.25	186.25	159.25	210.50	327.25	248.00	147.00	110.75	171.75	171.75	110.50	96.50	144.25	194.86
16	15-21 Apr.	182.50	521.00	290.00	177.75	284.50	207.25	406.50	342.00	319.75	221.00	160.30	221.00	221.00	117.50	107.00	148.50	245.47
17	22-28 Apr.	324.00	617.00	319.25	316.25	227.50	177.50	427.50	365.00	417.75	218.75	151.25	139.00	139.00	132.25	127.00	152.50	265.72
18	29-05 May.	524.00	639.75	321.75	499.00	531.50	213.00	360.50	397.75	401.00	231.75	182.00	151.75	151.75	151.50	139.00	172.25	316.77
19	06-12 May.	772.75	685.50	772.00	570.50	566.00	249.50	315.25	436.00	398.50	278.25	178.25	164.75	164.75	184.75	149.75	175.50	378.88
20	13-19 May.	1181.50	745.75	1051.50	544.25	548.00	401.25	320.75	387.75	365.75	285.75	201.25	254.00	254.00	198.50	166.50	177.50	442.75
21	20-26 May.	1911.00	1909.25	1508.00	484.25	479.25	420.25	441.25	462.75	412.00	385.75	235.50	232.50	232.50	223.50	197.25	192.50	607.97
22	27-02 Jun.	2631.25	1441.75	1389.25	718.75	663.00	543.25	500.25	485.50	429.00	326.00	255.00	198.75	198.75	251.75	203.25	197.25	652.05
23	03-09 Jun.	2173.75	1041.75	1331.00	747.50	566.25	528.25	590.25	442.50	491.75	408.50	335.00	189.50	189.50	272.50	214.50	204.75	607.95
24	10-16 Jun.	2111.75	708.00	1181.50	943.50	545.50	510.25	599.50	495.00	484.00	408.75	309.50	186.25	186.25	281.75	218.25	222.75	587.03
25	17-23 Jun.	1092.25	417.75	1402.25	839.75	525.00	500.20	570.00	430.50	470.50	223.50	402.50	195.25	195.25	272.50	231.75	242.25	500.70
26	24-30 Jun.	628.25	303.00	741.25	1004.75	374.75	242.50	601.25	458.50	502.75	246.75	377.75	176.00	176.00	295.50	243.25	167.50	408.73
27	02-08 July	551.50	176.50	667.50	457.75	78.50	222.75	572.50	444.00	436.75	240.75	212.25	169.00	169.00	270.25	284.75	142.25	318.50
28	08-14 July	473.00	195.25	736.00	155.75	302.00	150.75	590.00	411.25	476.25	229.00	376.50	146.50	146.50	242.75	292.50	168.50	318.28
29	15-21 July	359.75	449.25	332.00	92.25	323.50	148.50	600.25	529.00	322.75	272.00	295.50	162.00	162.00	222.75	230.25	160.50	291.39
30	22-28 July	184.50	370.79	388.75	113.50	325.75	110.50	603.50	531.00	294.75	213.50	261.00	163.75	163.75	201.50	201.25	151.50	267.46

M. W.	Period	Fruit fly population /trap/week																Mean
		2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	
31	29-04 Aug.	112.00	151.50	250.25	252.50	237.25	40.00	373.50	477.25	301.00	261.50	205.50	159.25	159.25	155.75	147.50	110.50	212.16
32	05-11 Aug.	81.20	63.50	265.75	50.00	185.75	27.25	246.50	432.00	298.50	246.00	210.50	136.50	136.50	135.25	130.25	101.25	171.67
33	12-18 Aug.	79.50	38.50	168.75	46.75	161.75	39.25	392.50	448.25	288.50	257.50	277.00	136.50	136.50	130.50	111.50	92.75	175.38
34	19-25 Aug.	103.25	27.00	151.50	80.00	158.50	54.25	479.50	402.50	284.75	264.00	210.50	108.25	108.25	132.50	99.50	72.25	171.03
35	26-01 Sept.	138.25	44.75	154.25	96.25	130.75	56.50	484.00	478.50	314.50	194.25	194.00	134.25	134.25	122.50	101.25	70.50	178.05
36	02-08 Sept.	98.50	52.25	275.00	69.00	61.50	55.00	388.50	421.25	229.75	174.50	230.50	115.25	115.25	109.75	90.75	66.25	159.56
37	09-15 Sept.	79.50	181.20	74.75	40.25	50.75	55.25	517.00	397.00	247.75	183.75	177.00	120.00	120.00	108.25	85.75	60.50	156.17
38	16-22 Sept.	92.50	97.25	72.25	55.50	54.50	71.50	421.00	380.00	231.50	179.50	164.00	129.75	129.75	110.25	72.50	60.00	145.11
39	23-29 Sept.	92.25	24.00	77.00	55.50	54.75	54.75	402.00	424.75	251.75	190.75	190.75	152.75	152.75	101.25	65.25	56.50	146.67
40	30-06 Oct.	75.75	52.50	44.75	24.50	37.00	42.00	459.50	432.50	248.00	158.00	188.00	158.00	158.00	92.50	82.25	48.25	143.84
41	07-13 Oct.	74.60	17.75	37.00	25.00	40.50	37.75	348.00	409.00	217.00	166.00	130.00	160.00	160.00	90.25	70.25	46.50	126.85
42	14-20 Oct.	65.25	18.50	22.00	32.75	42.25	50.50	462.50	424.00	220.00	180.75	112.25	134.50	134.50	80.50	64.50	42.25	130.44
43	21-27 Oct.	60.00	11.50	31.00	54.50	62.25	53.50	423.50	377.75	223.00	163.50	147.00	147.75	147.75	75.25	60.50	44.50	130.20
44	28-03 Nov.	40.78	27.00	24.25	25.25	64.00	43.25	474.50	337.75	240.50	145.00	163.00	124.75	124.75	70.50	61.25	40.50	125.44
45	04-10 Nov.	37.75	19.00	36.25	42.25	41.25	43.75	309.50	321.00	236.50	151.25	105.50	144.25	144.25	36.25	52.50	35.50	109.80
46	11-17 Nov.	34.50	7.00	34.75	43.75	29.25	44.25	335.00	395.00	165.75	108.75	160.50	125.25	125.25	67.50	48.50	36.00	110.06
47	18-24 Nov.	30.50	8.00	30.50	42.00	33.25	45.00	340.50	318.25	179.75	145.50	105.00	171.00	171.00	56.75	40.50	32.00	109.34
48	25-01 Dec.	140.50	9.50	44.25	49.75	49.75	36.25	569.00	372.00	195.00	162.50	125.25	141.50	141.50	48.00	35.25	31.50	134.47
49	02-08 Dec.	17.25	10.50	27.75	18.50	25.75	18.50	368.50	385.00	184.75	110.50	92.50	151.00	151.00	37.00	32.50	30.00	103.81
50	09-15 Dec.	17.75	18.75	33.50	14.75	43.50	18.75	386.50	401.25	187.50	109.75	88.50	166.50	166.50	53.50	30.00	30.50	110.47
51	16-22 Dec.	13.75	15.00	25.50	9.00	46.25	20.50	356.50	403.00	193.75	112.00	87.50	122.50	122.50	36.00	37.00	32.50	102.08
52	23-31 Dec.	12.00	20.75	21.25	20.50	40.50	18.25	472.00	324.25	222.25	120.00	99.50	155.75	155.75	57.50	41.25	28.00	113.09

Table 2: Average weather data and number of fruit flies trapped in 'Rakshak' fruit fly trap (2002 to 2017)

Sr. No	Met Week No.	Period	Av. Temperature (^{0}C)		Av. Relative Humidity (%)		Av. Rainfall (mm)	Av. Fruit Fly Population/Trap
			Max	Min	Morning	Evening		
1	1	01-07 Jan	31.82	18.00	87.45	55.68	0.12	68.58
2	2	08-14 Jan.	31.62	17.59	86.81	55.76	0.03	72.84
3	3	15-21 Jan.	31.76	17.47	88.37	55.91	0.00	72.81
4	4	22-28 Jan.	31.77	17.76	86.86	54.19	0.00	79.63
5	5	29-04 Feb.	32.23	17.88	88.28	56.48	0.28	82.92
6	6	05-11 Feb.	31.71	18.03	84.91	54.82	0.00	85.11
7	7	12-18 Feb.	31.74	18.41	86.52	55.90	0.08	88.64
8	8	19-25 Feb.	32.06	19.28	86.90	58.81	0.00	85.14
9	9	26-03 Mar.	32.18	19.88	88.06	61.03	2.27	96.52
10	10	04-10 Mar.	32.36	20.60	86.88	59.41	0.56	103.88
11	11	11-17 Mar.	32.30	21.57	86.20	62.00	0.02	114.66
12	12	18-24 Mar.	32.32	22.31	83.48	59.75	1.32	136.09
13	13	25-31 Mar.	32.34	23.62	84.91	62.26	1.54	151.39
14	14	01-07 Apr.	33.18	23.80	82.73	61.92	0.12	168.48
15	15	08-14 Apr.	33.57	24.63	80.63	62.29	0.56	194.86
16	16	15-21 Apr.	33.14	25.44	79.82	64.18	7.63	245.47
17	17	22-28 Apr.	33.70	25.94	79.45	65.13	0.01	265.72
18	18	29-05 May.	33.87	26.29	77.96	65.70	0.01	316.77
19	19	06-12 May.	34.02	26.89	77.68	65.30	9.47	378.88
20	20	13-19 May.	33.86	26.94	76.90	65.48	1.57	442.75
21	21	20-26 May.	34.58	27.06	78.18	66.38	13.31	607.97
22	22	27-02 Jun.	33.51	27.98	82.34	70.60	64.12	652.05
23	23	03-09 Jun.	32.25	25.69	85.31	75.90	156.19	607.95
24	24	10-16 Jun.	31.11	25.16	87.45	79.19	231.64	587.03
25	25	17-23 Jun.	32.99	25.32	87.51	80.89	229.32	500.70
26	26	24-30 Jun.	30.78	25.23	87.54	82.27	244.71	408.73
27	27	02-08 July	29.85	25.12	88.47	83.24	228.97	318.50
28	28	08-14 July	30.14	24.95	89.62	82.79	216.67	318.28
29	29	15-21 July	30.07	24.84	88.33	83.52	222.73	291.39
30	30	22-28 July	29.68	24.53	88.97	83.59	204.51	267.46
31	31	29-04 Aug.	28.56	23.77	86.04	80.03	161.00	212.16
32	32	05-11 Aug.	29.91	24.79	89.03	82.03	159.45	171.67
33	33	12-18 Aug.	30.10	24.55	89.98	81.96	111.92	175.38
34	34	19-25 Aug.	30.17	24.53	90.42	80.89	77.61	171.03
35	35	26-01 Sept.	30.01	24.39	91.34	81.29	138.17	178.05
36	36	02-08 Sept.	30.29	24.48	90.99	80.24	115.27	159.56
37	37	09-15 Sept.	30.75	24.41	90.43	79.15	57.59	156.17
38	38	16-22 Sept.	30.43	24.27	90.73	79.19	97.50	145.11
39	39	23-29 Sept.	31.04	24.31	90.30	77.79	53.32	146.67
40	40	30-06 Oct.	31.36	24.59	88.49	78.59	88.58	143.84
41	41	07-13 Oct.	32.09	24.61	88.83	76.39	28.79	126.85
42	42	14-20 Oct.	32.76	24.24	89.39	72.55	22.07	130.44
43	43	21-27 Oct.	33.40	24.81	86.61	67.40	9.10	130.20
44	44	28-03 Nov.	33.67	22.68	86.17	64.87	4.31	125.44
45	45	04-10 Nov.	33.86	22.50	83.66	66.15	11.10	109.80
46	46	11-17 Nov.	33.91	21.22	84.55	62.85	6.17	110.06
47	47	18-24 Nov.	34.04	21.59	84.52	63.42	5.52	109.34
48	48	25-01 Dec.	33.94	21.79	87.05	60.27	2.20	134.47
49	49	02-08 Dec.	33.70	21.25	85.93	58.98	2.19	103.81
50	50	09-15 Dec.	33.07	19.99	87.44	57.59	0.13	110.47
51	51	16-22 Dec.	33.53	18.87	87.22	55.35	8.26	102.08
52	52	23-31 Dec.	33.34	19.14	89.56	56.46	0.00	113.09

Table 3: Correlation coefficient between fruit fly population and weather parameters (2002-2017)

Sr. No.	Weather Parameter	Correlation Coefficient (Fruit fly Population)
1	Max. Temperature (^{0}C)	0.073436515
2	Min. Temperature (^{0}C)	0.711253472*
3	Relative Humidity – Mor. (%)	-0.384976325*
4	Relative Humidity – Eve. (%)	0.435483646*
5	Rainfall (mm)	0.512847145*
* Significant at 5% level of significance (r=0.27)		

Conclusion

From the results, it can be concluded that for the management of mango fruit fly, *B. dorsalis;* the mass trapping with the help of 'Rakshak' fruit fly trap developed by Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli is very effective.

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