

Research Note

Studies on losses of guava fruits by fruit fly, *Bactrocera* spp. in Pune region of Maharashtra state

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ABSTRACT

The present investigation was conducted with a view to estimate the losses of guava fruits by fruit fly, *Bactrocera* spp. in Pune region of Maharashtra state. The fortnight observations of infested guava fruits were recorded on samples collected from four locations, i.e. guava orchards each at Baner, Ganeshkhind, Modibagh and Gultekadi market yards in Pune vicinity. It was revealed that fruit loss in guava orchards infested due to fruit fly, *Bactrocera* spp. was estimated to the extent of 13.40 to 46.60 per cent and 12.50 to 42.86 per cent, respectively on weight basis and number basis, whereas, the fruit fly infestation in sample of marketed guava fruits collected from Gultekadi fruit market was recorded to the tune of 8.80 to 22.40 per cent on weight basis and 13.04 to 21.74 per cent on number basis.

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Guava (*Psidium guajava* L.) belongs to the family Myrtaceae and is one of the most important fruit crops. In Maharashtra, it is grown on 31,282 hectares of land with annual production of 2,23,587 metric tones (Anonymous, 2007). As compared to other nations, India has very low productivity, it is mainly due to pest problems. The insect pests viz., bark eating caterpillar (*Indarbella* spp.), scale insect (*Chloropulvinaria psidii*) and fruit fly (*Bactrocera* spp.) are most important pests of guava crop. The infestation of fruit fly is a major limiting factor in production of guava. It is in the range of 20 - 46 per cent with losses of 16 - 40 per cent (Haseeb, 2007). In Pune region the loss assessment work has not been carried out so far. Hence, the loss estimation study was undertaken to know the severity of fruit fly infestation.

Five kg fruits were collected at each harvest from four locations at fortnightly interval from the month of September to December, 2008 for loss estimation studies. These fruits were kept in the laboratory for ripening in rearing cages under observation. The ripen fruits were cut and critically examined for the presence of fruit fly maggots under magnifying lens (10 X). The fruits with maggots of fruit fly were treated as infested fruits and without maggots were treated as healthy

fruits. The observations on number and weight of healthy and infested fruits were recorded and then per cent infestation and per cent loss of weight due to fruit fly was calculated.

The data regarding per cent losses caused by fruit fly on weight and number basis from three garden each from different localities and one from market are presented in Table 1. The data revealed that, the fruit losses in guava orchards due to fruit fly, *Bactrocera* spp. were recorded in the range of 13.40 to 40.60 per cent on weight basis and 12.50 to 42.86 per cent on number basis. However, highest average per cent infested fruits (32.70) on weight basis and 33.89 per cent on number basis were observed at Baner locality whereas lowest average per cent infested fruits (26.50) on weight basis and 26.98 per cent on number basis were observed from the samples collected from Modibag fields. However, the average lowest per cent infested fruits (17.10) on weight basis and 17.12 per cent on number basis were observed in the samples collected from Gultekadi market, this might be due to the graded and selected guava fruits brought in the market for sale.

The maximum average infested fruits were 30.25 per cent on weight basis and 31.29 per cent on number basis from the samples collected on 27.12.2008. Overall average fruit fly

Table 1 : Per cent losses caused by fruit fly complex from harvested and marketed fruits on weight and number basis

Sr. No.	Date of observation	Per cent infested fruits								Average infested fruits	
		Baner		Ganeshkhind		Modibag		Gultekadi market fruit			
		Weight	Number	Weight	Number	Weight	Number	Weight	Number	Weight	Number
1.	20-09-08	20.40	20.00	32.40	34.78	28.60	27.27	21.80	21.74	25.80	25.95
2.	04-10-08	25.20	26.09	35.20	37.50	29.60	30.43	17.60	18.18	26.90	28.05
3.	18-10-08	35.80	36.00	32.00	31.82	30.80	33.33	8.80	13.04	26.85	28.55
4.	01-11-08	32.40	33.33	34.40	31.82	13.40	12.50	22.40	21.74	25.65	24.85
5.	15-11-08	31.00	33.33	21.40	21.74	23.80	24.00	13.80	13.64	22.50	23.18
6.	29-11-08	37.80	39.19	36.40	34.78	32.40	33.33	13.20	16.64	29.95	30.99
7.	13-12-08	38.40	40.00	13.40	12.50	21.40	21.74	20.80	20.83	23.50	23.77
8.	27-12-08	40.60	42.86	30.00	30.77	32.00	33.33	18.40	18.18	30.25	31.29
Average		32.70	33.89	29.40	29.41	26.50	26.98	17.10	17.12	26.43	26.85

infestation was 26.43 per cent on weight basis and 26.85 per cent on number basis during the period from 20 .9. 2008 to 27.12. 2008.

Jalaluddin *et al.* (1999) recorded *B. correcta* damaging guava fruits to the extent of 60 - 80 per cent. Hasseb (2007) reported the infestation of fruit fly *Bactrocera* species to the extent of 20 - 45 per cent with crop loss of 60 - 40 per cent. Khanh *et al.* (2008) observed the infestation of *Bactrocera* species to the extent of 4 per cent, 16 per cent and 94 per cent in early season, mid season and late season, respectively in 2007 in the North Vietnam. Thus, the findings of the present investigations regarding the fruit loss inflicted by the fruit fly species complex are in conformity with reports of earlier workers.

Conclusion:

Fruit fly, *Bactrocera* spp. is the serious menace to the fruit crops and cucurbitaceous vegetable crops in the state of Maharashtra. Due to increase in the area under fruit crops like guava, the intensity of this pest is increasing day by day. The fruit loss in guava orchards due to fruit fly species was estimated in the range of 13.40 to 40.60 per cent on weight basis and 12.50 to 42.86 per cent on number basis. The harvested marketable guava fruits were also observed for fruit

fly infestation and per cent infested fruits ranged from 8.80 to 22.40 per cent on weight basis and 13.04 to 21.74 per cent on number basis.

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REFERENCES

- Anonymous (2007).** Area, production and productivity of fruits in Maharashtra (National Horticulture Mission). <http://www.nhm.com>.
- Hasseb, M. (2007).** Current status of insect pest problems in guava. *Acta. Hort.* (ISHS), **735**: 453-467.
- Jalaluddin, S.M., Natarajan, K., Sadakathulaa, S. and Balasubramaniam, S. (1999).** Discovery of the guava fruit fly *Bactrocera correcta* (Bezzi). *Entomon.*, **24** (2): 195-196.
- Khanh, L.D., Dao, D.T., Nguyen, T.T.H., Tran, T.T., Vu, T.T.T., Phan, M.T., Vu, V.T. and Dang, D.T. (2008).** Fruit flies and their control by using protein bait in Vietnam. GAP workshop in Binh Thuan 21 - 22/7/2008.
