



STUDIES ON PERCENT REDUCTION OF FRUIT FLY DAMAGE IN MANGO ORCHARDS BY USING PATEL FRUIT FLY TRAPS

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Abstract: A study on per cent reduction of fruit fly damage was carried out in mango orchards by using “Patel fruit fly trap”. The results showed that the per cent fruit fly damage was reduced from 29 per cent to 16 per cent in Regional Research Station and 12 Per cent in Horticultural instructional farm in mango orchards.

Index Terms – *Bactrocera zonata*. Oviposition, Maggots, Patel fruit fly traps

INTRODUCTION

Mango (*Mangifera indica*) occupies a pride place amongst fruits grown in the country. The mango which belongs to family Anacardiaceae is an important tropical and sub-tropical fruit crop. It is grown in India for more than 4000 years (Candolle, 1904). It can be grown in almost all part of country except in temperate zone. Among the fruits of universal importance, mango is one of the top, because of its sweet fragrance, attractive colour, high palatability, taste and quality being rich in sugar, Vitamins (Vitamin –A and Vitamin-C) and minerals. It is rightly referred as “KING OF FRUITS”.

Fruit fly is an important pest of mango belongs to family Tephritidae and order Diptera. These are commonly called “Fruit fly” due to their close association with fruits. Kapoor (1970) listed 128 species of fruit flies and out of these, eight species are found infesting mango fruit in India. These species are *Bactrocera zonata* (Saunders), *Bactrocera dorsalis* Hendel, *Bactrocera correctus* (Bezzi), *Bactrocera diversa* (Coquillett), *Bactrocera hageni* De majiere, *Bactrocera cucurbitae* (Coq.), *Dacus incisus* Walker and *Dacus tau* (Walker).

The adult female fruit flies insert the ovipositor inside the fruits and eggs are deposited in clusters. Dark puncture caused due to the oviposition. Maggots on hatching, feed on the pulp and brown patches appear on the fruit surface. Looking to the apparent importance of the pest the investigation was carried out to study Per cent reduction of fruit fly damage in mango orchards by using Patel fruit fly traps.

REVIEW OF LITERATURE

Fruit fly *Bactrocera zonata* is the most destructive pest of fruit crops causing direct damage to fruits. In Baluchistan (Quetta), Janjua (1948) reported that *D. ferrugineus* (*dorsalis*) infesting mango and guava fruits, when the fruits are about to ripen. The fly punctures the fruits with its sharp ovipositor and lays eggs inside the

fruit tissues. The maggot feed on the pulp of fruit. Later on fruit rotted and become unfit for human consumption.

The studies on reduction of pest population i.e. *B. Zonata* and *B.dorsalis* was carried out in guava orchard at North West Frontier Province by Nuclear Institute for Food and Agriculture, Peshwar, Pakistan by using male annihilation technique. This technique contains the male sex pheromone, Sugar and lure toxicants in the ratio of 85:10:5. The traps were installed in the orchards at the rate of 8 traps/acre. The male flies were attracted to the traps and killed inside due to lure toxicants. The results showed that the pest population was reduced by 60 to 67 per cent in guava orchard and the farmers income was increased by 58 per cent (Anon., 1997).

MATERIALS AND METHODOLOGY

To study the per cent reduction of fruit fly damage in mango cv. Kesar, five “Patel fruit fly traps” were installed at two locations Viz. Horticultural Instructional Farm and Regional research Station, Gujarat Agricultural University, Sardar Krushinagar. The distance between two locations was two kilometers. The control plot of one hectare was located at Regional Research Station, Gujarat Agricultural University, Sardar Krushinagar.

The mango fruits (10 fruits/tree) were harvested randomly from two plots, where “Patel fruit traps” were installed. Total hundred fruits were harvested from each plot and at the same time 100 fruits were also harvested from control plot (10 fruits/tree). The incidence were assessed by observing oviposition punctures as well as maggots inside the fruits in the laboratory and the per cent reduction of fruit fly damage was worked out.

RESULTS AND DISCUSSION

Study on per cent reduction of damage caused by fruit fly was carried out by using “Patel fruit fly traps”. The traps were installed at two locations Viz. Horticultural Instructional Farm and Regional research Station. The traps were installed in the orchards at the rate of 5 traps per hectare. The male fruit flies attracted and died in the traps were counted.

To study the per cent fruit damage hundred fruits from each location was collected. The data presented in the table 01 showed that the percent fruit damage caused by fruit flies at regional Research station was 16 Per cent while at Horticultural Instructional Farm it was 12 Per cent. Hundred fruits from control plot located at Regional Research Station were Observed and showed 29 Per cent fruit damage. The result of the experiments showed that the per cent fruit damage was reduced from twenty nine per cent to sixteen per cent in Regional Research station and twelve percent at Horticultural Instructional Farm in Comparison to control plot in mango orchards by using “Patel fruit fly traps”.

Table 01: Per cent reduction of fruit fly damage at various locations

Location	Number of Fruits observed	Healthy fruits	Damaged fruits	Per cent damage
Regional Research Station	100	84	16	16
Horticultural instructional farm	100	88	12	12
Control Plot	100	71	29	29

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