BACTROCERA DORSALIS AN INVASIVE FRUIT FLY SPECIES IN MAURITIUS

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ABSTRACT

The Oriental fruit fly, Bactrocera dorsalis was first detected in Mauritius in 1996 and then declared eradicated in 1999. A second interception was made in 2013 and it was eradicated. The insect was recorded a third time in 2015 and it spread to the whole island. Sample of fruits were collected regularly, weighed and incubated in the laboratory to determine the infestation levels. Results showed that B. dorsalis has gradually displaced Bactrocera zonata, Ceratitis quilicii and C. capitata in fruits.

INTRODUCTION

After two successful eradication of Bactrocera dorsalis (Hendel) (Diptera: Tephritidae) in 1996 and in 2014 from Mauritius, the fly was trapped for the third time in October 2015 in one mango orchard. An eradication programme using the bait application technique and the male annihilation technique was implemented. Unfortunately, infested fruits were sold outside the eradication area. In 2017, B. dorsalis was present island wide. Fruit fly trapping and larval surveillance were pursued.

METHODOLOGY

From 2015 to March 2020, fruits and vegetables were collected on a fortnightly basis from the field, weighed and incubated on a layer of sand in plastic trays covered with cloth. After 3 to 5 days, the sand was sieved for the first time and a second sieving was done after 7 to 8 days. Collected pupae were counted and placed in Perspex cages (15 cm x 15 cm x 20 cm). Adult food and water were provided. Three days after emergence, the flies were killed by placing the cage in a refrigerator for at least 5 minutes. The flies were identified and counted.

RESULTS

Tables (i) to (iii) Infestation levels of fruits with Bactrocera zonata, Bactrocera dorsalis, Ceratitis quilicii and Ceratitis capitata from 2016 to March 2020

(i) Indian almond

(ii) Mango

(iii) Guava

DISCUSSION AND CONCLUSION

More than 40 fruits and vegetable species were collected and incubated in the laboratory. In 2015, B. zonata was the most dominating fruit fly species in most fruits followed by C. quilicii and C. capitata. One year after its accidental introduction, B. dorsalis became the most devastating fruit fly species, followed by B. zonata, C. quilicii and C. capitata. The no. of B. dorsalis/kg from Indian almond which is a wild fruit, rose from 0.6 in 2016 to 63.55 in 2019 while the no. of B. zonata decreased from 31.70 in 2015 to 0.00 in 2019.

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