EFFECT OF PHEROMONE AND SUGAR BAIT ON FR FLY OF CUCURBITS.

By

NIRANJANA VIVEKANANTHANATHAN

A Research Report

Submitted in partial fulfillment of the Requirements of the advanced course.

Agricultural Biology

For

The degree of Bachelor of Science in Agriculture.

Faculty of Agriculture Eastern University Sri Lanka 2000

Approved by





Supervisor

201, 40 1534 Oth 254

Dr. S. Raveendranath.

Dean of Faculty of Agriculture.

Eastern University Chenkalady

Sri Lanka.

Date :- 17.01.2001

39437

Head / Agronomy

Dr. (Mrs.). T. Maahendran.

Head / Agronomy

Faculty of Agriculture

Eastern University

Chenkalady

Sri Lanka

Date : 12.01.200

Faculty of Agrice Main Library, EUSL Eastern University, Sri Lanka:

Abstract

This study was carried out in the Agricultural farm of Eastern University to evaluate the efficacy of Pheromone trap and Sugar baited trap on fruit flies of Cucurbits. The number of fruit flies species collected during this period was also identified using morphological features.

Bitter gourd and Snake gourd were selected for this study. Six Pandals were provided for these crops. Three of them were planted with Bitter gourd and other three were planted with Snake gourd. Among the Pandals, one of the Bitter gourd and Snake gourds Pandal was used for Control. Among the four Pandals, each was constructed with a Pheromone trap and a Sugar baited with Fenthion trap. The number of caught fruit flies in traps, number of fruits and number of infested fruits were counted weekly.

The results showed that, the number of fruit flies caught in Pheromone trap was significantly higher than the Control. And there was no significant (P> 0.05) difference between Control and Sugar baited trap.

The number of fruit flies, Bactrocera (Zeugodacus) gavisa and Bactrocera (Zeugodacus) sp near tau trapped in the Pheromone trap was ignificantly higher than the Bactrocera (Zeugodacus) cucurbitae.

Based on these findings, it is recommended that Pheromone traps are useful to trap fruit flies of Cucurbits during Maha season.

Contents.

		Page.
Abstract		17 I
Acknowledgement		п
Contents		III
List of Figures		VI
List of Tables		VII
List of Plates	×	VIII
Chapter 1 Introduction		²⁰ 1
Chapter 2 Review of Literature		6
2.1 Classification		21. 6
2.2 Taxonomic notes		7
2.3 Distribution		7
2.4 Pest status and Commercial host	. .	8
2.5 Morphology of fruit flies		9
2.5.1 Mature stage.	V	9
2.5.2 Immature stages	Ĭ	11
2.5.2.1 Egg	<i>b</i>	11
2.5.2.2 First instar larvae	aited trap.	11
2.5.2.3 Second instar larvae		11
2.5.2.4 Third instar larvae		12
2.5.2.5 Puparium		12
2.6 Biology of fruit fly		13
2.7 Host plant.		15

2.7.1 Bitter gourd (Momordica charantia)	
2.7.2 Snake gourd (Trichosanthes cucumerina L.) 2.7.3 Secondary substance in Cucurbits.	16 17
2.8 Pheromones	18
2.8.1 Introduction to Pheromone	18
2.8.1.1 Sex pheromone	18
2.8.1.1.1 Merits of Pheromone	19
2.8.1.1.2 Demerits of Pheromone	20
2.9 Pest management	20
2.9.1 Status of Natural enemies	20
2.9.2 Trapping and Baits	21
2.9.2.1 The design of Pheromone trap	24
2.9.2.2 The design of Sugar baited trap	25
2.9.3 Control and suppression.	25
2.9.4 Eradication	25
Chapter 3 Materials and Methods.	30
3.1 Preparation of Pandals and planting holes.	30
3.2 Preparation of Seeding and seeding bags.	31
3.3 Preparation of Pheromone trap and Sugar baited trap.	32
3.4 Formulation.	33
3.4.1 Sugar bait.	33
3.4.2 Pheromone (Methyl eugenol).	34
3.5 Planting of germinated Bitter gourd and Snake gourd in the	34

3.6 Arranging the Pheromone trap and Sugar baited trap on the Pandal.	35
3.7 Maintenance.	36
3.8 Measurements.	37
3.9 Treatments and Field layout.	38
3.9.1 Treatments.	38
3.9.2 Field layout.	39
Chapter 4 Results and Discussion.	40
4.1 Variability in efficacy of treatments.	40
4.2 Identification of different species in fruit flies.	44
Conclusion.	49
References.	50
Appendix.	36

4.