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THE ROLE OF CYRTORHINUS LIVIDIPENNIS REUTER (HEMIPTERA,
MIRIDAE) AS A MAJOR PREDATOR OF THE BROWN PLANTHOPPER
NILAPARVATA LUGENS STAL. (HOMOPTERA, DELPHACIDAE)

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TABLE OF CONTENTS

	<u>Page</u>
INTRODUCTION	1
REVIEW OF LITERATURE	4
Brown Planthopper (BPH) as a Major Pest	4
Biology Control of BPH	5
Mirid Predator, <u>Cyrtorhinus lividipennis</u> as an Important Predator of BPH	6
Geographical Distribution of <u>C. lividipennis</u>	7
Biology of <u>C. lividipennis</u>	7
Consumption Rate of <u>C. lividipennis</u>	10
Influence of Plant Resistance on <u>C.</u> <u>lividipennis</u>	11
Effect of Insecticide on <u>C. lividipennis</u>	11
Rearing Methods of <u>C. lividipennis</u>	13
MATERIALS AND METHODS	14
Mass Rearing of <u>Cyrtorhinus lividipennis</u>	14
Biology of <u>Cyrtorhinus lividipennis</u>	16
Predation Characteristics of <u>Cyrtorhinus</u> <u>lividipennis</u>	17
Functional Response to BPH Eggs	17
Predation Capacity for BPH Eggs	17
Predation on BPH Eggs and First Instar Nymphs	18
Predation on Different Species of Hopper Eggs	19
Predation on BPH Eggs at Different Positions in the Rice Stem	20
Evaluation of <u>Cyrtorhinus lividipennis</u> Predation	21
Greenhouse Evaluation of Rice Varieties with Three Levels of Resistance	21

	<u>Page</u>
Field Cage Evaluation	22
Ratio of BPH and <u>Cyrtorhinus</u>	22
Arrival Time of <u>Cyrtorhinus</u>	24
Abundance of <u>Cyrtorhinus lividipennis</u> in the Field	27
Population Density of <u>Cyrtorhinus</u> , Planthoppers, and Spiders During Dry and Wet Seasons	27
Establishment of the experimental area	27
Sampling method	27
Statistical analysis	28
Predation of the <u>Cyrtorhinus</u> on BPH eggs in the field	30
Density of <u>Cyrtorhinus</u> and Spiders Under Simulated Field Population of BPH	31
RESULTS AND DISCUSSIONS	34
Biology of <u>Cyrtorhinus lividipennis</u>	34
Life Table and Population Growth Statistics	34
Predation Characteristics of <u>Cyrtorhinus</u> <u>lividipennis</u>	38
Functional Response to BPH Eggs	40
Predation Capacity for BPH Eggs	40
Predation on BPH Eggs and First Instar Nymphs	43
Predation on Different Species of Hopper Eggs	43
Predation on BPH Eggs at Different Positions in the Rice Stem	46
Predation Ability of <u>Cyrtorhinus lividipennis</u> on BPH	49
Population Buildup of BPH and <u>Cyrtorhinus</u> on Varieties with Three Levels of Resistance	49
Population Buildup of BPH and <u>Cyrtorhinus</u> Based on Their Population Ratios	60

	<u>Page</u>
Population Buildup of BPH and <u>Cyrtorhinus</u> Based on Arrival Time of Predator	69
Abundance of <u>Cyrtorhinus lividipennis</u> in the Field	79
Population Density of <u>Cyrtorhinus</u> , Planthoppers and Spiders	79
Dry Season 1987-88	79
Correlation Coefficients for Planthoppers and <u>Cyrtorhinus</u>	82
Wet Season 1988	82
Correlation Coefficients for Planthoppers and <u>Cyrtorhinus</u>	85
Distribution Pattern of <u>Cyrtorhinus</u> and BPH in Untreated Field	89
Predation of <u>Cyrtorhinus</u> on BPH Eggs in the Field	93
Density of <u>Cyrtorhinus</u> and Spiders Under Simulated Field Population of BPH	95
BPH Population	95
<u>Cyrtorhinus</u> and Spiders Population	99
Population Ratios of BPH- <u>Cyrtorhinus</u> , and BPH- <u>Cyrtorhinus</u> and Spiders	100
Correlation Coefficients for BPH- <u>Cyrtorhinus</u> , and BPH- <u>Cyrtorhinus</u> and Spiders	104
SUMMARY AND CONCLUSION	109
LITERATURE CITED	112
APPENDIX TABLES	121

LIST OF TABLES

<u>Table</u>		<u>Page</u>
1	Number of nymphal instars of <u>C. lividipennis</u> in different countries	9
2	Life table of <u>C. lividipennis</u> on BPH and <u>Corcyra</u> eggs. IRRI, 1987	36
3	Instantaneous search rate (a') and handling time (Th) of <u>C. lividipennis</u> on BPH eggs. IRRI, 1987	41
4	Predation of <u>C. lividipennis</u> for BPH eggs and first instar nymphs (1 predator/24 hrs). IRRI, 1988	45
5	Predation of <u>C. lividipennis</u> for eggs of different species of hoppers (1 pair/48 hrs). IRRI, 1988	47
6	Predation of <u>C. lividipennis</u> based on BPH eggs' position on the rice stem (1 pair/48 hrs). IRRI, 1988	48
7	Population (no./cage) of BPH adults and nymphs in combination with three levels of resistant varieties and four ratios of BPH and mirid. IRRI, greenhouse	50
8	Population (no./cage) of BPH eggs in combination with three levels of resistant varieties and four ratios of BPH and mirid. IRRI, greenhouse	53
9	Population (no./cage) of <u>C. lividipennis</u> adults and nymphs in combination with three levels of resistant varieties and four ratios of BPH and mirid. IRRI, greenhouse	55
10	Population (no./cage) of <u>C. lividipennis</u> eggs in combination with three levels of resistant varieties and four ratios of BPH and mirid. IRRI, greenhouse	56

<u>Table</u>	<u>Page</u>	
11	Population ratio of BPH (adults and nymphs) and <u>C. lividipennis</u> in combination with three levels of resistant varieties and three BPH-mirid ratios during four observation dates. IRRI, greenhouse	58
12	Population ratio of BPH eggs and <u>C. lividipennis</u> in combination with three levels of resistant varieties and three BPH-mirid ratios during four observation dates. IRRI, greenhouse	59
13	Correlation coefficients for BPH adults and nymphs with <u>C. lividipennis</u> in combination three levels of resistant varieties and three BPH-mirid ratios during four observation dates. IRRI, greenhouse	61
14	Correlation coefficients for BPH eggs with <u>C. lividipennis</u> in combination three levels of resistant varieties and three BPH-mirid ratios during four observation dates. IRRI, greenhouse	62
15	Population (no./cage) of BPH (adults, nymphs, and eggs) at different population ratios of BPH and <u>C. lividipennis</u> in four observations on a susceptible variety TN1. IRRI, 1987-88 dry season	64
16	Population (no./cage) of <u>C. lividipennis</u> (adults, nymphs and eggs) in different population ratios of BPH and mirid in four observations on a susceptible rice variety TN1. IRRI, 1987-88 dry season	66
17	Population ratios of BPH (adults and nymphs, eggs) and <u>C. lividipennis</u> at four initial BPH-mirid ratios during four observation dates in field cages. IRRI, 1987-88 dry season	68

<u>Table</u>	<u>Page</u>	
18	Correlation coefficients for BPH (adults and nymphs, eggs) and <u>C. lividipennis</u> at four initial BPH-mirid ratios during four observation dates in field cages. IRRI, 1987-88 dry season	70
19	Population (no./cage) of BPH (adults, nymphs, and eggs) at different arrival times of <u>C. lividipennis</u> in four observations on rice variety TN1. IRRI, 1988 wet season	72
20	Population (no./cage) of <u>C. lividipennis</u> (adults, nymphs, and eggs) at different arrival times of <u>C. lividipennis</u> in four observations on rice variety TN1. IRRI, 1988 wet season	75
21	Population ratios of BPH (adults and nymphs, eggs) and <u>C. lividipennis</u> at different times of the mirid arrival during four observation dates in field cages. IRRI, 1988 wet season	76
22	Correlation coefficients for BPH (adults and nymphs, eggs) with <u>C. lividipennis</u> at different times of the mirid arrival during four observation dates in field cages. IRRI, 1988 wet season	78
23	Correlation coefficients for planthoppers and total <u>C. lividipennis</u> by FARMCOP insect suction sampler on IR1917-3-17 in untreated field. IRRI, 1987-88 dry season	83
24	Correlation coefficients for planthoppers and total <u>C. lividipennis</u> by FARMCOP insect suction sampler on IR1917-3-17 in treated field. IRRI, 1988 wet season	88
25	Correlation coefficients for planthoppers and total <u>C. lividipennis</u> by FARMCOP insect suction sampler on IR1917-3-17 in untreated field. IRRI, 1988 wet season	90

<u>Table</u>		<u>Page</u>
26	Correlation coefficients for planthoppers and total <u>C. lividipennis</u> by FARMCOP insect suction sampler on IR1917-3-17 in untreated and treated fields. IRRI, 1987-88 dry and wet seasons	91
27	Sampler number, mean, variance, k values, U or T statistics + S.E. of <u>C. lividipennis</u> distribution at several crop growth stages in untreated transplanted rice. IRRI, 1987-88 dry season	92
28	Sample number, mean, variance, k values, U or T statistics + S.E. of BPH distribution at several crop growth stages in untreated transplanted rice. IRRI, 1987-88 dry season	94
29	Population (no./field cage or 5 hills) of BPH (adults and nymphs) at different opening times of field cage in untreated and treated fields. IRRI, 1988 wet season	97
30	Number of other natural enemies of BPH found during sampling at different opening times of field cage in both treated and untreated fields. IRRI, 1988 wet season	98
31	Population of <u>C. lividipennis</u> and spiders per field cage at different opening times of field cage in untreated and treated fields. IRRI, 1988 wet season	101
32	Population ratios of BPH- <u>C. lividipennis</u> and BPH- <u>C. lividipennis</u> and spiders at different opening times of field cage in untreated and treated fields. IRRI, 1988 wet season	103
33	Population ratios of BPH eggs and <u>C. lividipennis</u> at different opening times of field cage in untreated and treated fields during three observation dates. IRRI, 1988 wet season	105

Table

Page

34	Correlation coefficients for BPH with <u>C. lividipennis</u> and <u>C. lividipennis</u> and spiders at different opening times of field cage in untreated and treated fields. IRRI, 1988 wet season	106
35	Correlation coefficients for BPH eggs with <u>C. lividipennis</u> at different opening times of field cage in untreated and treated fields during three observation dates. IRRI, 1988 wet season	108

LIST OF FIGURES

<u>Figure</u>		<u>Page</u>
1	Mass rearing procedure of <u>C. lividipennis</u>	15
2	Field cages used in the study of population buildup of BPH and <u>C. lividipennis</u> based on their population ratio	23
3	The FARMCOP insect suction device used for sampling planthoppers and their predators in the field study	25
4	Field cages used in the study of population buildup of BPH and <u>C. lividipennis</u> based on arrival time of <u>C. lividipennis</u>	26
5	Field cages used in the study of density of <u>C. lividipennis</u> and spiders under simulated field population of BPH	32
6	Probability of survival (lx) curve of <u>C. lividipennis</u> reared on eggs of BPH and <u>Corcyra</u> . IRRI, 1987	35
7	Number of egg laid by <u>C. lividipennis</u> reared on eggs of BPH and <u>Corcyra</u> , vertical lines are standard error (S.E.) of the mean. IRRI, 1987	35
8	Percent of instar nymph groups of <u>C. lividipennis</u> when fed on BPH and <u>Corcyra</u> eggs. IRRI, 1987	39
9	Functional response of <u>C. lividipennis</u> male and female to BPH eggs, vertical lines are standard error (S.E.) of the mean. IRRI, 1987	42
10	Predation capacity of <u>C. lividipennis</u> adult for BPH eggs, vertical lines are standard error (S.E.) of the mean. IRRI, 1988	44

<u>Figure</u>		<u>Page</u>
11	Population (no./cage) of BPH adults and nymphs in combination with three levels of resistant varieties and four <u>BPH-Cyrtorhinus</u> ratios. IRRI, greenhouse	52
12	Population (no./cage) of BPH eggs in combination with three levels of resistant varieties and four <u>BPH-Cyrtorhinus</u> ratios. IRRI, greenhouse	52
13	Population (no./field cage) of BPH adults and nymphs at different ratios of <u>BPH-Cyrtorhinus</u> in field cages. IRRI, 1987-88 dry season	67
14	Population (no./field cage) of <u>Cyrtorhinus</u> adults and nymphs at different ratios of <u>BPH-Cyrtorhinus</u> in field cages. IRRI, 1987-1988 dry season	67
15	Efficiency of <u>C. lividipennis</u> for reducing BPH population at different arrival times of predator in field cages. IRRI, 1988 wet season	73
16	Number of <u>C. lividipennis</u> , planthoppers and spiders (per hill) sampled by FARMCOP suction IR1917-3-17 in untreated field. IRRI, 1987-1988 dry season	81
17	Number of <u>C. lividipennis</u> , planthoppers and spiders (per hill) sampled by FARMCOP suction on IR1917-3-17 in treated field. IRRI, 1988 wet season	86
18	Number of <u>C. lividipennis</u> , planthoppers and spiders (per hill) sampled by FARMCOP suction on IR1917-3-17 in untreated field. IRRI, 1988 wet season	87
19	Percent of BPH eggs attacked by <u>C. lividipennis</u> in the rice field at several crop growth stages. IRRI, 1987-88 dry and wet seasons	96

LIST OF APPENDIX TABLES

<u>Appendix Table</u>	<u>Page</u>
1 <u>C. lividipennis</u> adult consumption of BPH eggs. IRRI, Laboratory	121
2 Mean (x) number and coefficient of variance (c.v.) for arthropods in IR1917-3-17 untreated field by FARMCOP insection suction sampler. IRRI, 1987- 1988 dry season	122
3 Mean (x) number and coefficient of variance (c.v.) for arthropods in IR1917-3-17 treated field by FARMCOP insect suction sampler. IRRI, 1988 wet season	123
4 Mean (x) number and coefficient of variance (c.v.) for arthropods in IR1917-3-17 untreated field by FARMCOP insect suction sampler. IRRI, 1988 wet season	124
5 Field predation of <u>C. lividipennis</u> on BPH eggs within 3 days in untreated and treated fields at four crop periods. IRRI, 1987-88 dry and wet seasons	125
6 Common k (kc) values of <u>C. lividipennis</u> and BPH at several crop growth stages in untreated transplanted rice. IRRI, 1987- 1988 dry season	126

ABSTRACT

MANTI, ISHAK. University of the Philippines at Los Banos, June 1989. "The Role of *Cyrtorhinus lividipennis* Reuter (Hemiptera, Miridae) as a Major Predator of Brown Planthopper *Nilaparvata lugens* Stal (Homoptera, Delphacidae)".

Major Adviser: Dr. Clare R. Baltazar.

A series of laboratory/greenhouse and field experiments was conducted at the International Rice Research Institute (IRRI) in the province of Laguna, Philippines. Biology and predation of *Cyrtorhinus* were observed in the laboratory. Predation of *Cyrtorhinus* on BPH population was evaluated in the greenhouse using mylar cages and by setting up field cages. Fluctuations of the *Cyrtorhinus* population and its prey, brown planthopper (BPH) and whiteback planthopper (WBPH) on the rice variety IR1917-3-17 for two seasons, 1987-88 dry season (DS) and 1988 wet season (WS), were monitored on a field plot of about 0.25 ha. During WS, the field was divided into 2 plots, one unsprayed and the other sprayed with monocrotophos at 15, 30, 45, and 65 days after transplanting. The FARMCOP insect suction sampler was used for sampling in these experiments. Field predation by *Cyrtorhinus* was determined by placing eggs laid on potted plants in transplanted rice field.

Longevity, oviposition, and intrinsic rate of increase for Cyrtorhinus feeding on BPH eggs were found to be greater than when they were fed on Corcyra eggs.

The functional response of Cyrtorhinus was found to fit Holling's Type II model. Searching efficiency (a') and handling time (Th) of Cyrtorhinus female were estimated to be 0.491 and 0.031, respectively. Cyrtorhinus preferred BPH egg over the first instar nymph and other hopper (GLH and WBPH) eggs.

In the field cage experiment, Cyrtorhinus introductions at a week after BPH at equal and 2:1 ratios were found to reduce BPH populations. In the greenhouse, a cumulative action of resistant varieties and predation of Cyrtorhinus effectively reduced BPH populations.

Population of Cyrtorhinus in an unsprayed field of variety IR1917-3-17 during DS was greater than that of the WS. In the sprayed field, it was slightly lower than in the unsprayed field. Cyrtorhinus showed positive response to BPH populations. Distribution patterns of Cyrtorhinus were found to be similar to that of BPH late stages of rice plant growth which fitted the negative binomial. Field predation of Cyrtorhinus on BPH eggs was about $17.71 \pm 2.57\%$ when population of this mirid was $1.15 \pm 0.12/\text{hill}$.

Natural enemies effectively controlled a simulated population of BPH to a low level on a susceptible variety (TN1).