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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

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDIX TABLES

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/hill.

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