Relative Abundance of Stink bugs (Hemiptera: Pentatomidae) in Southwestern Colombia Rice Fields[1]

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ABSTRACT Relative abundance of stink bugs was determined from 01 May 1989 to 30 September 1992 in 80 commercial rice fields in Colombia and in 12 selected rice-producing countries of Latin America. Fifteen stink bug species from nine genera were found in Colombia. The species are *Oebalus ornatus* (Sailer), *Mormidea maculata* Dallas, *Tribraca obscurata* Bergroth, *M. pictiventris* Stål, *O. pugnax torridus* (Sailer), *Proxys punctulatus* (Palisot de Beauvois), *O. insularis* (Stål), *T. limbativentris* Stål, and *O. ypsilongriseus* (De Geer). In Valle del Cauca Department in southwestern Colombia, the most abundant species was *O. ornatus* representing 94.1% of the stink bugs collected. Seven species comprised the remaining 5.9%. *Oebalus ornatus* and *O. ypsilongriseus* were recovered from seven Latin America countries and had the widest geographical range of the stink bugs species collected during the study.

KEY WORDS Pentatomidae, *Oebalus*, rice, sampling

Rice is planted on approximately 415,000 ha in Colombia. The cost of insect control is a limiting factor for rice production in Colombia representing 8 to 10% of total production costs for the period of 1986-1989 (CIAT 1991).

In Colombia, stink bugs in rice require up to three insecticide applications per season (A. Pantoja, personal observation). In spite of insecticide use, little is known about the taxonomic identity and population dynamics of pentatomid species affecting rice production in Colombia. King and Saunders (1984) reported *Oebalus insularis* Stål and *O. ornatus* (Sailer) as rice pests in Colombia. On the other hand, Gonzáles et al. (1983) and Weber (1989) reported *O. poecilus* (Sailer) as the principal stink bug species affecting rice in Colombia. This work reports on the identity and distribution of pentatomids affecting rice in Colombia and in other rice-producing countries of Latin America.

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Materials and Methods

Stink bugs were collected with a standard insect sweep net (38-cm diam) in different rice areas and fields of Colombia. The work was conducted in commercial flooded rice fields in the areas of Jamundi, Ginebra, and Centro Internacional de Agricultura Tropical (CIAT), located in Valle del Cauca Department, Colombia. A total of 80 fields was evaluated from 01 May 1989 to 30 September 1992.

Samples were collected weekly or biweekly depending on availability of rice fields. Six samples were collected from each randomly selected field. Each sample consisted of 100 sweeps with each horizontal stroke of the net in either direction considered one sweep which was completed with each forward step. Sampling started 10 to 15 days after planting and ended at harvest. Insects were placed in plastic bags, transported to the laboratory, frozen, counted, and sorted by species. Due to difficulties in identifying immatures, only adults were considered.

Random samples also were taken in other rice-producing areas of Colombia (Meta and Tolima Departments) and other rice-producing countries in Latin America. The countries sampled were Brazil, Cuba, Dominican Republic, Ecuador, El Salvador, Guyana, Nicaragua, Panamá, Perú, Puerto Rico, Venezuela, and Surinam. In these areas 100 sweeps were collected at random on rice fields. The purpose of this sampling was only to determine the species present.

Specimens were determined by D. A. Rider (North Dakota State University, Fargo, ND). Voucher specimens were deposited in the insect collection at Centro Internacional de Agricultura Tropical, Cali, Colombia, South America.

Results and Discussion

Fifteen species of pentatomids from nine genera were recovered from commercial rice fields in Colombia from 01 May 1989 to 30 September 1992 (Table 1). Previous reports (González et al. 1983, Weber 1989) indicated the presence of only one species of stink bug in Colombian rice fields. During the same period, six of the species also were collected from random samples in other rice-growing areas in Latin America (Table 1). In Valle del Cauca Department, in southwestern Colombia, the genus *Oebalus* represented by four species was the most abundant accounting for 94.1% of the stink bugs collected (Table 2). The genera *Mormidea* and *Tribraca* were the second and third in abundance representing 3.4% and 2.1% of the specimens collected, respectively.

In the Valle del Cauca Department, *O. insularis* was found at Palmira and Jamundí, but not in Ginebra (Table 1). *Oebalus ypsilongriseus* was recovered from Ginebra and Palmira, but not from Jamundí. The latter species also was collected from upland rice in Meta Department in northeastern Colombia. *Euschistus* sp., *Proxys punctulatus* Palisot de Beauvois, and *Thyanta perditor* (F.) were recovered in low densities from Valle de Cauca Department (Table 2). Two species, *O. ypsilongriseus* and *O. ornatus*, were recovered from seven countries. *Oebalus insularis* was only collected from El Salvador, Cuba, Colombia, and Nicaragua.

No literature on pentatomid distribution or relative abundance from Colombian rice fields could be found to compare with our studies. In Puerto Rico, Franqui (1987) reported differences in pentatomid species composition in rice fields in

Table 1. Distribution of Pentatomidae from rice fields in Colombia and selected rice-producing countries in Latin America 1989-92.

Species	Colombia (Department/City)	Other Latin American Countries
Antiteuchus sp.	Valle/Jamundi	
Cyptocephala antiguensis (Westwood)	Valle/Palmira	
Edessa sp.	Valle/Jamundi, Meta/Carimagua	Brazil
Euschistus sp.	Valle/Jamundi	Puerto Rico
Mormidea maculata Dallas	Valle/Ginebra, Jamundi, Palmira, Tolima	
Mormidea pictiventris Stål	Valle/Jamundi, Palmira, Meta/Carimagua	
Mormidea angustata Stål	Meta/Puerto López, Carimagua	
Oebalus insularis (Stål)	Valle/Palmira, Jamundi Tolima/Saldaña, Armero	El Salvador Cuba, Nicaragua
Oebalus ornatus (Sailer)	Valle/Palmira, Jamundi, Ginebra, Obando	Dominican Republic Venezuela, Puerto Rico, Ecuador, Guyana, Surinam
Oebalus pugnax torridus (Sailer)	Valle/Jamundi, Palmira,	Panamá Puerto Rico
Oebalus ypsilongriseus (De Geer)	Valle/Ginebra Meta/Los Bálticos, Carimagua	Dominican Republic, Venezuela, Puerto Rico, Ecuador, Guyana, Suriname
Proxys punctulatus (Palisot de Beauvois)	Valle/Jamundi, Palmira,	Nicaragua
Thyanta perditor (F.)	Valle/Ginebra, Meta/Villavicencio	Suriname, Brazil
Tribraca obscurata Bergroth	Valle/Palmira, Jamundi	Ecuador, Venezuela
Tribraca limbativentris (Stål)	Meta/Los Bálticos, La Balsa Valle/Palmira	Perú, Ecuador, Venezuela

Table 2. Relative abundance of Pentatomidae from commercial rice fields in Valle del Cauca Department, Colombia, 1989 - 1992.

Species	Specimens examined	Percentage
Oebalus ornatus (Sailer)	2796	93
Mormidea maculata Dallas	76	2.5
Tibraca obscurata Bergroth	56	1.9
Mormidea pictiventris Stål	28	0.9
Oebalus pugnax torridus (Sailer)	24	0.8
Proxys punctulatus (Palisot de Beauvois)	13	0.4
Oebalus insularis (Stål)	6	0.2
Tibraca limbativentris Stål	5	0.2
Oebalus ypsilongriseus (De Geer)	2	0.1

close proximity to each other. In southern Florida four stink bug species were found associated with rice fields (Jones and Cherry 1986). *Oebalus pugnax* Sailer composed over 95% of the total population. The differences in species composition among the rice-producing areas reported in our study may be due to alternate host plant availability. Daza and Pantoja (1992) reported differences in host range for pentatomids in Colombia. Presence of alternate hosts could affect species composition within rice fields.

The presence of a species complex, rather than a single species of stink bug suggests that action thresholds for control measures in Colombia need to be refined. The action threshold for stink bugs in Colombian rice fields was defined for *O. poecilus* (Gonzales et al. 1983, Weber 1989). However, *O. poecilus* was not collected in our study and has not been collected from rice fields in other countries in the region (Table 1).

The large number of stink bug species present in rice fields in Colombia and the paucity of information on their taxonomic identity, population dynamics, and economic impact probably contributes to the high number of insecticide applications in the Valle del Cauca areas. Farmers associate the presence of adults in the field with low insecticide efficacy when actually different species could be moving into the fields after the insecticide application.

Additional studies are needed to compare the damage and/or insect density-yield reduction for the species reported here. Because most species can be collected

in the same field at the same time, farmers and scouts should be aware of the collective damage potential of these species. Action thresholds need to be defined for *O. ornatus,* the most abundant species in southwestern Colombia rice fields. Additional research is needed to understand the factors affecting stink bug population development in rice fields.

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