Insects collected in cultivate of maize in Brazil.

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Abstract

Corn (Zea mays L.), due to its productive potential, chemical composition and nutritional value, is one of the most important cultivated and consumed cereals in the world. For this reason, a population survey of insects was conducted in the city of Itumbiara, Goiás State, Brazil. During the growing season in 2000. The most collected species were: Doru luteipes (Dermaptera: Forficulidae), Gryon gallardoi (Bréthes) (Hymenoptera: Scelioidae), Helicoverpa zea (Lepidoptera: Noctuidae) and Spodoptera frugiperda (Lepidoptera: Noctuidae). These results are important because they contribute to the knowledge of insect species that occur in corn crop in the state of Goiás, Brazil.

Keywords: parasitoids, preadators, biological controle, insects pest Goiás.

INTRODUCTION

The corn Zea mays L. (Poales: Poaceae), due to its productive potential, chemical composition and nutritional value, is one of the most important cultivated and consumed cereals in the world (FANCELLI & NETO, 2000). Corn is used as a raw material for the production of starch, oil, flour, glucose, chemicals, animal feed and in the preparation of food formulations.

In terms of geographical distribution, maize appears in the four corners of the country. The Center-South Region is responsible for over 95.0% of cereal production (BULL & CANTARELLA, 1993).

The losses due to insect attack on corn crop are variable and can reach relatively high values in extreme cases. The pests that commonly occur in maize crop are: chorus,
sugarcane borer, grasshopper leafhoppers, termite, cartridge caterpillar, elasmo caterpillar, brown stink bug, corn stink bug and others (BULL & CANTARELLA, 1993; FRANCELLI & NETO, 2000).

The objective of this work was to carry out a population survey of insects that occur in the corn crop, also verifying the influence of treatments on the insect population (pests and natural enemies).

MATERIAL AND MÉTHODOS

The experiment was carried out at Santa Maria farm in Itumbiara, Goiás, Brazil. The study was conducted on an area of one hectare. This hectare was divided into 7 plots, each containing an area of 44x20m. The collections were weekly from January to February 2001. In each treatment, eight ears of corn were randomly collected and individualized in plastic bags, taken to the laboratory and placed in a cold chamber for 24 hours to obtain the insects. The dead individuals were removed with the help of tweezers that were counted and identified later.

To obtain the parasitoids, Hemiptera eggs and Diptera pupae were then placed in the chamber. The obtained egg mass was placed in a glass jar and the pupae individualized in gelatin capsules and kept until the emergence of the parasitoids and/or adults Hemiptera and Diptera.

RESULTS AND DISCUSSION

From January to February 2000, 280 ears of corn were collected, from which 381 insects were obtained. It was observed that 53.6% of these ears were damaged, probably due to the attack in the pests.

Table 1 presents the insects collected during the 2000 harvest, emphasizing agricultural pests and natural enemies such as predators and parasitoids. The most frequent natural enemies collected were the predatory species *Doru luteipes* (Dermaptera: Forficulidae) and the parasitoid *Gryon gallardoi* (Hymenoptera: Scelioidae).

The most collected agricultural pests were: *Helicoverpa zea* (Lepidoptera: Noctuidae) and *Spodoptera frugiperda* (Lepidoptera: Noctuidae). *H. zea* and *S. frugiperda* can be considered the main corn pests in the region.
Regarding parasitoids: *Brasema* sp. (Hymenoptera: Pteromalidae), *Conura* sp. (Hymenoptera: Chalcididae), *Gryon gallardoi* (Brèthes) (Hymenoptera: Scelionidae) and Pteromalidae (Hymenoptera: Pteromalidae) the percentage observed was 52.2%. *Brasema* sp. and *G. gallardoi* were obtained from eggs of *Leptoglossus zonatus* (Dallas) (Hemiptera: Coreidae), while *Conura* sp. and a parasitoids of the family Pteromalidae were found in pupae of *Allograpta obliqua* Say (Diptera: Syrphidae).

*Doru luteipes* has proven to be an efficient pest predator, many of them harmful (CRUZ & OLIVEIRA, 1997). One insect has been shown to have great potential in the biological control of two major maize pests, such as *H. zea* and *S. frugiperda* (CRUZ et al., 1997). The insect is found in the field throughout the year, especially in the early stages of corn cultivation (CRUZ et al., 1997).

*Gryon gallardoi* belongs to the Scelionidae family. It is a parasitoid of eggs of the family Hemiptera Coreidae (LOIACONO, 1980). This species is found in Argentina (Buenos Aires) and Brazil (Porto Alegre-Rio Grande do Sul) (LOIACONO, 1980).

The insect *H. zea*, known as the corn cob caterpillar or tomato borer, attacks corn, cotton, tomato, sorghum, onion, garlic, cucurbit, solanaceae and common bean. Important pests of maize, especially sweet corn, destroy the ear grains and tomato fruits (ZUCCHI et al., 1993). It causes damage to corn crop, feeding on the style and stigma of the plant, preventing fertilization and consequently grain formation (CRUZ et al., 1995).

The results obtained in this study allow to extend the geographic distribution of insects collected in corn crop in the Brazilian territory. These results are important because they contribute to the knowledge of insect species that occur in corn crop in the state of Goiás, Brazil.

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| Taxonomic group | Number of individuals | (%) |
|-----------------|-----------------------|-----|
| Díptera         |                       |     |
| Buwento sp.     | 07                    | 1.8 |
| Lophago diatraes | 05                    | 1.3 |
| Coleóptera      |                       |     |
| Calosoma sp.    | 05                    | 1.3 |
| Diabrotica speciosa | 10                 | 3.8 |
| Tribolium sp.   | 20                    | 5.2 |
| Dermaptera      |                       |     |
| Dora lateralis  | 120                   | 31.5|
| Hymenoptera     |                       |     |
| Brasema sp.     | 02                    | 0.5 |
| Conura sp.      | 02                    | 0.5 |
| Gryon galiano   | 11                    | 2.9 |
| Pterocomidae    | 09                    | 2.4 |
| Hemiptera       |                       |     |
| Leptoglossuszonatus | 40              | 10.5|
| Lepidoptera     |                       |     |
| Helicoverpaeza  | 90                    | 23.6|
| Spodoptera frugiperda | 60         | 14.7|
| Total           | 381                   | 100.0|
