



OCCURRENCE OF GEOMETRIDAE ON SOYBEANS IN PARANA, BRAZIL—(Note): The area of Brazil planted to soybeans has expanded considerably in recent years, thus providing a major host for insects. Several of the pest species have been studied, yet the presence of geometrids, which are among the lesser-known pests of soybeans, has not been reported in Brazil.

Geometridae were sampled from December 1973 to May 1974 in a 0.5 ha plot of soybeans of the variety Hardee, in Ponta Grossa, Paraná. Sampling was by weekly inspection of 30 randomly-chosen, entire soybean plants and by twice-weekly sweeping. The geometrids from both sampling methods were counted and reared individually in the laboratory, as were the geometrid larvae collected from other soybean fields on the same site. In 1975, soybean plants of the variety Paraná, on a site near that used in 1974, were beaten over a 1-m long ground cloth, at weekly intervals between 1 April and 6 May, 10 samples being taken on each occasion.

During the entire 1973-1974 sampling period only 28 geometrid larvae were found. Sweep-net sampling was found more efficient than the plant inspection method. The following 18 were reared to adults: *Iridopsis vacillaria* Walker (n=1), *Oxydia nimbata* Guenée (n=2), *Semiothisa regulata* Fabricius (n=2), *Semiothisa* sp. (n=2), *Stenalcidia* sp. (n=10), Unidentified (species 'A')¹ (n=1).

In 1974, all but 1 of the geometrid larvae were found when the soybeans were mature, or very nearly mature. The larvae of *O. nimbata*, *S. regulata* and *Semiothisa* sp. were found in the last week of March and first week of April, whereas *Stenalcidia* sp. was found only in the second half of April and in May. The maximum number of geometrid larvae sampled in the sweeping method (2.5 per 100 m of row) occurred at the end of April, when the soybeans were mature.

Of the 28 larvae reared, 2 (1 *Stenalcidia* sp. and 1 unidentified geometrid) were parasitised by the tachinid *Euphorocera* sp., the pupa of the parasite being formed within that of the host and only 1 adult parasite emerging from each of the parasitised geometrids.

In 1975, only 6 geometrids were found, 4 of which occurred in the sampling on 8 April, giving a maximum of 0.4 larvae per meter of row. They consisted of 1 larva of *O. nimbata*, 3 of *Stenalcidia* sp. and 2 unidentified species (species 'B' and 'C')¹, all of which were reared to adults.

Over the 2 seasons at least 8 different geometrid species occurred, although they formed only a very small proportion of the total lepidopterous larvae present. They were considered in these experiments to be pests of only secondary importance in soybeans. We thank Dr. F. G. Rindge, American Museum of Natural History, and Dr. J. H. Guimarães, Museu do Zoologia da Universidade de São Paulo, for identification of the geometrids and the tachinid, respectively. We also thank Dr. G. L. Greene, University of Florida, for criticism of the manuscript. Beatriz S. Corrêa and Judith G. Smith, Departamento de Zoologia, Universidade Federal do Paraná, Caixa Postal 756, Curitiba 80.000, Paraná, Brasil.

¹Unidentified specimens are accessible from the insect collection, Departamento de Zoologia da Universidade Federal do Paraná, Curitiba, Brasil.