

## **BASES FOR AN INSECTICIDE RESISTANCE MANAGEMENT OF *SPODOPTERA FRUGIPERDA* IN CORN IN BRAZIL.**

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Corn is one of the most important crop in Brazil with about 12 million hectares of cultivated area per year. This crop has been cultivated all the year round with up to 3 different growing seasons in some regions. Therefore, the problem of pests attacking corn has also increased. The fall armyworm (*Spodoptera frugiperda*) is one of the most important corn pests in Brazil. Approximately 60 million US dollars were spent with insecticides in corn in 1998; and about 40% of this amount was to control fall armyworm. Field failures have been reported frequently with the use of conventional insecticides for controlling this pest. Then, a survey of the susceptibility of *S. frugiperda* to commonly used insecticides such as the organophosphate chlorpyrifos ethyl and the pyrethroids lambda-cyhalothrin and zeta-cypermethrin was conducted in 1996/1997. Populations of *S. frugiperda* were collected from some corn-growing regions located in the State of Paraná, São Paulo, Minas Gerais and Goiás. The frequency of the resistance to these compounds varied from < 1% to > 35%. A 16-fold resistance was detected to chlorpyrifos ethyl and 16 to 40-fold to the pyrethroids. Studies on dynamics of the resistance conducted from 1996 to 2000 revealed that the resistance frequencies to chlorpyrifos and lambda-cyhalothrin have increased in a stair-step fashion through time. In response to these results, another survey of susceptibility of *S. frugiperda* was conducted in 1999/2000 to evaluate the extent of the problem to other compounds such as thiodicarb, spinosad, methoxyfenozide and lufenuron. In this paper, we will also present the baseline susceptibility data of *S. frugiperda* to these insecticides, diagnostic concentrations for monitoring resistance and cross-resistance studies. Suggestions for an insecticide resistance management of *S. frugiperda* in Brazilian cornfields will be presented.

Index terms: fall armyworm, chlorpyrifos ethyl, lambda-cyhalothrin.