

## COMUNICAÇÃO CIENTÍFICA

### THRIPS SPECIES IDENTIFIED IN SOYBEAN FIELDS IN BRAZIL

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#### RESUMO

#### Espécies de Trips Identificadas em Cultivos de Soja, no Brasil

O vírus da queima do broto da soja (tobacco streak virus) constitui-se na principal doença causada a esta cultura por vírus no Brasil. A transmissão deste vírus é feita por trips. Em levantamentos realizados em campos de soja para determinar as espécies de trips que ocorrem na região de Arapoti, Paraná, Brasil, foram identificados 6 gêneros e 6 espécies distintas. Constatou-se que as espécies *Caliothrips braziliensis* (Morgan) e *Frankliniella schultzei* (Trybom) foram as mais comuns. Foi constatada elevada prevalência de *Haplothrips robustus* Bagnall sobre a invasora *Ambrosia polystachya* DC. A incidência da queima do broto mostrou-se relacionada à maior população de trips, a qual depende do total acumulado de chuva na época de semeadura da soja. Com base em dados coletados de 1986 a 1990, a análise de regressão ( $Y = 152,64 - 0,0748X$ ;  $r^2 = 0,87$ ) demonstrou que a população de trips (Y) tende a diminuir com o total de chuva acumulada (X).

**PALAVRAS-CHAVE:** Insecta, Thysanoptera, vírus de queima do broto da soja, epidemiologia.

Soybean bud blight, caused by tobacco streak virus, is the most important viral disease of soybeans in Brazil. Its occurrence is endemic in some areas in the states of Paraná and São Paulo where it has caused severe losses to farmers (Costa *et al.* 1970, Almeida & Corso 1991). Symptoms closely resemble those caused by tobacco ringspot virus in soybeans in USA, as

Table 1. Correlation observed between the percentage of soybean plants infected, total number of thrips and total amount of rainfall, from 1986 to 1990.

	Infected plants (%)
Total of insects	0.80*
Total of rainfall	-0.93*

\* P = 0.05

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Table 2. Thrips species collected in soybean fields during 1991 and 1992 at Arapoti, Paraná, Brazil.

Year	Date	Plant host	Family	Species	Insects/sample
1991	10/10	<i>A. polystachia</i>	Thripidae	<i>F. gemina</i> Bagnall	4
				<i>F. oxyura</i> Bagnall	1
				<i>C. mexicanus</i> Crawford	1
			Phlaeothripidae	<i>H. gowdeyi</i> (Franklin)	1
				<i>H. robustus</i> Bagnall	40
	11/11	Soybean	Thripidae	<i>C. braziliensis</i> (Morgan)	2
				<i>F. schultzei</i> (Tryvorn)	10
	11/13	<i>A. polystachia</i>	Thripidae	<i>C. mexicanus</i>	1
	12/04	Soybean	Thripidae	<i>F. gemina</i>	6
				<i>C. braziliensis</i>	20
<i>F. schultzei</i>				1	
<i>Frankliniella</i> sp.				1	
<i>Neohydatorhips</i> sp.				5	
12/04	Soybean	Thripidae	<i>C. braziliensis</i>	13	
			<i>F. schultzei</i>	4	
1992	01/07	Soybean	Thripidae	<i>C. braziliensis</i>	24
	01/02	Soybean	Thripidae	<i>Neohydatorhips</i> sp.	1
				<i>C. braziliensis</i>	5
				<i>F. schultzei</i>	1
	08/23	Soil	Thripidae	<i>Echinothrips</i> sp.	25

mentioned by Fagbenle & Ford (1970).

Outbreaks of soybean bud blight are associated with the occurrence of a common weed (*Ambrosia polystachya* DC.) known as virus host, and thrips vector. The role of thrips in the spread of TSV was suspected by Costa *et al.* (1970). However, assurance that these insects were really involved with the disease dissemination to soybean fields was reported a few years later by Costa & Costa Lima Neto (1976). These authors observed that thrips of the genus *Frankliniella* collected in flowers of *Ambrosia polystachya*, and transferred to soybean plants were able to transmit the pathogen. As determined, by those authors, another species, *Caliothrips braziliensis* (Morgan), did not transmit the virus. In another test, *Thrips tabaci* Lind. collected from cotton plants infected by TSV also failed to transmit the virus to soybeans. However, in the USA, Kayser *et al.* (1982) reported that *T. tabaci* and *F. occidentalis* (Perg.) were able to transmit TSV. It was clear from those results that not all thrips species collected in soybean fields were able to transmit that virus. The objective of this study was to determine which species of thrips were present in soybean fields and how their population changed with time at Arapoti, PR.

Plants were randomly taken and tapped over a white card-box (25 x 12 x 10 cm). Thrips

specimens were counted and placed in a glass vial with a solution of ethylalcohol, water, glycerine and acetic acid glacial (8:5:1:1 parts) and sent for identification at the Systematic Entomology Lab., USDA, in Beltsville, Maryland, USA. At the same time an evaluation of disease incidence, was made counting the number of infected plants in four blocks of 16 m<sup>2</sup> each, randomly determined in the field.

A positive correlation between the number of infected plants and the number of thrips sampled during 1986 and 1990 was observed. Thrips population decreased with the increase of accumulated rainfall (Table 1). This correlation was mentioned previously (Almeida & Corso 1991).

The survey resulted in a total of 6 genera, 7 determined and 3 undetermined species (Table 2). *C. braziliensis* was the most common species collected. *Frankliniella schultzei* (Trybom) and *C. braziliensis* were already identified in soybean fields in Brazil (Moscardi & Almeida 1980) and were the most prevalent species sampled. However, in this study, new species were identified suggesting that new species may be involved in the transmission of TSV. On *A. polystachya* the most prevalent species were *Hepliothrips robustus* Bagnall and *F. gemina* Bagnall. This note adds new species of thrips to those already identified in soybean fields in Brazil. It also shows the relationship between number of insects, total rainfall and disease incidence.

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