

## THRIPS SEASONAL ABUNDANCE AND SPECIES COMPOSITION ON ONIONS IN THE VIDALIA PRODUCTION REGION

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### **Introduction**

Early in the 2003-2004 onion production season, a problem became apparent in onion transplant beds. While the exact culprit has not been determined, one potential problem detected was Iris Yellows Spot Virus (IYSV). While the potential impact of this virus in Georgia remains highly debatable, it has proven to be a severe problem in other onion production regions. The vector of this virus is thrips, with onion thrips, *Thrips tabaci*, reported to be the primary vector in several regions of the world. In Georgia, onion thrips is reported to occur, but typically represents a small portion of the population. The primary thrips collected on onions in Georgia are reported to be the western flower thrips, *Frankliniella occidentalis*, and the tobacco thrips, *F. fusca*. Western flower thrips is reported to not vector IYSV. It is not known whether tobacco thrips can vector this virus.

Concurrent with detection of IYSV in the Vidalia onion production region, live onion thrips were also discovered inside of onions culled from shipments imported from Peru. With potential introduction of both a new viral disease and its vector into the region, surveys were conducted to evaluate the distribution of both the disease and the vector. This report addresses the results of surveys conducted to evaluate the thrips species composition on onions in the Vidalia production region.

### **Materials and Methods**

Eight fields within Toombs and Tattnall Counties were selected for thrips sampling (these fields had been previously selected for virus sampling as well). Toombs and Tattnall Counties were selected as these two counties account for over half of the onion production in Georgia. In each field, on each sample date, plants were visually examined for thrips. Plants were randomly selected and sampling was conducted for approximately 30 minutes in each field on each date (one person sampling for 30 minutes, or two sampling for 15 minutes). Thrips were aspirated off the plants and placed

into alcohol. In addition to the eight commercial fields, the original cull piles of onions from Peru were periodically monitored for thrips species composition and six additional commercial fields were monitored once.

All thrips collected were examined to determine developmental stage (adult or immature) and species. The majority of thrips collected were adults and only the adult data is presented. Adult thrips were examined under a dissecting scope for preliminary species identification. Subsamples were mounted on slides and examined under a compound microscope for species verification.

### **Results and Discussion**

Results of the commercial fields survey are presented in Table 1. Sampling was attempted prior to the indicated dates, but a limited number of fields were visited and very few thrips were encountered; thus, the survey was delayed until the indicated dates. As usual, thrips populations were low until mid-March then increased through harvest. The eight commercial fields sampled periodically yielded over 95 percent tobacco thrips for most fields, and a single onion thrips the entire season. The six other commercial fields sampled once in Feb., March or April yielded > 90 percent tobacco thrips and no onion thrips. The cull onions from Peru did support an onion thrips population, with 60 percent onion thrips on the last sample date (Table 2). However, samples collected on the same date at the nearest commercial onion field did not detect any onion thrips.

The presence of high onion thrips populations on the cull onions from Peru are of concern as they could represent an introduction of a new 'biotype' of onion thrips into Georgia, however, the significance of this is unknown at this time. The lack of onion thrips in the commercial fields, particularly the field closest to the cull pile location, is a promising indicator that onion thrips have not become a more prominent species at this time. Surveys of thrips species composition will be needed in the future to determine if this changes. The detection of onion thrips, and IYSV, on cull onions during the 2004-05 season could represent very early detection of an emerging problem or first detection of a minor problem that has been present but undetected for years. Only time and future surveys will elucidate the correct answer.

**Table 1. Thrips species composition in commercial onions fields in Toombs and Tattnall Counties, Georgia, 2004.**

Location	<u>Number collected March 3</u>			<u>Number collected March 17</u>			<u>Number collected April 7</u>			Percent Tobacco Thrips
	Tobacco	Onion	Other	Tobacco	Onion	Other	Tobacco	Onion	Other	
Toombs South 1	1	0	0	14	0	1	25	0	0	97.6
Toombs South 2	3	0	0	54	0	3	81	0	5	94.5
Toombs Central				33	0	2	56	0	2	95.7
Toombs North	1	0	0	11	0	1	30	0	2	93.3
Tattnall South	0	0	1	9	0	0	77	0	1	97.7
Reidsville 1	2	0	0	10	0	0				100.0
Reidsville 2	0	1	0	24	0	0	87	0	0	99.1
Tattnall North	0	0	1	23	0	1	67	0	0	97.8

**Table 2. Thrips species composition in cull piles of onions from Peru, 2003-04.**

Location	<u>Number collected 16 Dec.</u>			<u>Number collected 3 Feb.</u>			<u>Number collected 10 Mar.</u>			<u>Number collected 7 Apr.*</u>		
	Tobac.	Onion	Other	Tobac.	Onion	Other	Tobac.	Onion	Other	Tobac.	Onion	Other
Culls	0	3	0	3	0	0	2	8	0	25	38	2

\*Twenty two thrips were collected from the nearest commercial field (about ½ mile northwest) with no onion thrips collected (20 tobacco thrips, 2 other).