Research Journal of Agriculture and Biological Sciences 2(1): 22-24, 2006

First Incidence of *Frankliniella occidentalis* (Pergande) (Thysanoptera, Thripidae) on Cotton in Amik Plain, Hatay

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Abstract: *Thrips tabaci, Frankliniella intonsa* and ***Frankliniella occidentalis*** were determined as thrips pests of cotton in Amik plain. Presence of ***F. occidentalis*** was reported for the first time as a pest of cotton in Amik plain. In Reyhanli It was found in only one field in June, and according to the samplings in August it was obtained from the whole plain as dominant thrips species. ***Orius*** spp. was also observed as a predator in the flowers where ***F. occidentalis*** fed on. The results indicate that up to date ***F. occidentalis*** population level has not reached to the economic injury level.

Key words: Amik plane,cotton, thrips species, ***Frankliniella occidentalis***

INTRODUCTION

Frankliniella occidentalis (Pergande) (Thysanoptera, Thripidae) is a pest of many different crops all around the world and it was first reported in California (USA) feeding on apricot, potato, citrus and various weeds[1]. First appearance in Europe was believed to be before 1983[2,3]. It gained importance as a greenhouse pest, and caused loss of yield on ornamentals, cucumber, bell pepper and other vegetables[3,4].

In Turkey, ***Frankliniella occidentalis*** was first reported on a few vegetables in Antalya in 1993[5], within a year it was observed in Cukurova region in flowers of cotton plants with the other flower thrips ***Frankliniella intonsa*** (Trybom)[6]. In Cukurova region, ***F. occidentalis*** replaced ***F. intonsa*** in three years in cotton fields in polyculture areas[6]. ***Frankliniella occidentalis*** was also reported from Izmir region on vegetables grown in greenhouses[7,8].

Frankliniella occidentalis and ***F. intonsa*** feed on flowers of cotton and damage flowers and generative organs within flowers[9-11]. These species cause important economical damage especailly on late sown cotton fields by spilling young cotton bolls[11].

This study was aimed to determine the thrips pests of cotton and their distributions in Amik plain especially ***F. occidentalis*** which recovered first time in Amik plain on cotton.

MATERIALS AND METHODS

This study was conducted in June–August period of 2005, in cotton fields of Amik plain. Five cotton fields selected from each of Reyhanli, Kumlu, Demirkopru and Kirikhan towns. Thrips were sampled in sporadic surveys in above mentioned fields to determine the prevalence of thrips species. D-Vac, sweep-net and the whole plant examination methods were used and also flowers of the plants were sampled during the flowering stage of cotton. For whole plant examinations, 25 plants were carefully checked from each field on each sampling date, and the thrips species found put into plastic tubes (2 cc) containing 70% alcohol. From each field plants were sampled by D-Vac for 2-3 minutes, and by sweep-net for 25 sweeping, and the samples collected put into cloth bags. Since flower thrips mainly feed on flowers[12], 50-100 cotton flowers from each field were collected during flowering season and put into plastic containers. Samples transferred to the laboratory within an icebox and chilled in a refrigerator to immobilize the thrips species then plastic bags shaked off on a white background for counting. Thrips species were collected by a brush and put into 70% alcohol, separated to species with a stereomicroscope and recorded separately. Permanent slides of thrips species were made according to Bryan and Smith[13]. Identifications were done by the use of Moritz and Meland[14] and confirmed by third author

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RESULTS AND DISCUSSIONS

Thrips tabaci Lindeman, ***Frankliniella intonsa*** (Trybom) and ***Frankliniella occidentalis*** (Pergande) were identified in this study as thrips species of cotton in Amik plain. ***Thrips tabaci*** and ***F. intonsa*** were known species of Amik plain but ***F. occidentalis*** was recorded for the first time in this region. It was observed that this species together with ***T. tabaci*** fed on the leaves of cotton plants in early stages.

It was reported that ***F. occidentalis*** together with ***F. intonsa*** fed on only flowers of cotton plants sown at standard time[10], and it fed on seedlings and caused significant damage on late-sown cotton[11]. Other studies indicated that ***F. occidentalis*** occurs in great numbers mostly during the flowering stage of cotton, and fed on the seedlings in early stages[15-17].

In Amik plain, presence of ***F. occidentalis*** was determined in June 2005 in the leaves of young cotton seedlings and onion plants in a nearby field in Reyhanli where cotton cultivation is intense. Although, in early June ***F. occidentalis*** was reported from only one field in Reyhanli, ***T. tabaci*** was found common in all of the sampling areas (Table 1) On 5 June, samples from Kumlu, Demirkopru and Kirikhan were yielded only ***T. tabaci*** species. In Reyhanli for the same date, ***F. occidentalis*** and ***T. tabaci*** species were found from a cotton field and from leaves and flowers of a ***Solanum nigrum*** plant and onion leaves within a nearby onion field. In July, ***F. occidentalis*** and ***T. tabaci*** were collected from the same field, but in other sampling sites ***F. occidentalis*** was not present. However, on 23 August, ***F. occidentalis*** was widespread all around Amik plain feeding on flowers of cotton plants, but there was not any

Table 1: Percentages of thrips species present on cotton plants in Amik plain in 2005.

Sampling date and place	Species					
	Frankliniella occidentalis		*Frankliniella intonsa*		*Thrips tabaci*	
	Leaf	Flower	Leaf	Flower	Leaf	Flower
05 June						
Reyhanli	50	-	-	-	50	-
Kumlu	-	-	-	-	100	-
Demirkopru	-	-	-	-	100	-
Kirikhan	-	-	-	-	100	-
15 June						
Reyhanli	57	-			43	-
Kumlu	-	-			100	-
Demirkopru	-	-			100	-
Kirihan	-	-			100	-
03 July						
Reyhanli	70	-	-	-	30	-
Kumlu	-	-	-	-	100	-
Demirkopru	-	-	-	-	100	-
Kirikhan	-	-	-	-	100	-
23 August						
Reyhanli	-	92	-	6	-	2
Kumlu	-	93	-	7	-	-
Demirkopru	-	94	-	6	-	-
Kirikhan	-	60	-	40	-	-

important damage to the leaves.

Percentages of ***F. occidentalis*** in samples from Reyhanli, Kumlu, Demirkopru and Kirikhan were found to be 92%, 93%, 94% and 60% respectively. Corresponding percentages for ***F. intonsa*** were 6%, 7%, 6% and 40%. ***Orius*** spp as predator of ***F. occidentalis*** and ***F. intonsa*** were observed in the flowers of cotton plants. Surveys determined that the economical injury level of 50 individuals>/flower for Cukurova region[11] was not reached.

In conclusion, ***F. occidentalis*** was found to be the dominant thrips species in most of the Amik plain and to be spreading towards Kirikhan region. Surveys and further studies are needed to determine the other hosts and economical injury levels to other crop plants as well as cotton.

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