

Frankliniella occidentalis (Thysanoptera: Thripidae) sex-ratio evaluation in pepper crop greenhouses in relation with biotic and abiotic parameters

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Abstract – This study was held in two experimental sites belonging to the Tunisian Eastern Central Coast. *Frankliniella occidentalis* Pergande 1895 (Thysanoptera: Thripidae) males and females counting during the study period using two sampling methods: blue sticky traps and sampling of flowers, showed that differences between both sexes tends gradually to rise approaching hot season with a continuous increase of females' number till the end of prospecting. These differences between both sexes affected the sex ratio recorded on flowers and blue sticky traps which tended to decrease progressively from 0.13 and 0.15 to 0.02 and 0.009 in pepper flowers in the biotope of Bekalta, from 0.11 and 0.14 to 0.08 and 0.06 in pepper flowers and 0.37 to 0.19 on blue sticky traps in the biotope of Moknine. Biotic and abiotic parameters in the greenhouses had an impact on sex-ratio tendency; more climatic conditions and pepper flowers' number improve and thrips density becomes higher, more sex-ratio tends to decrease. The apical stratum of pepper crop had the highest sex-ratio and males, females and total thrips number with often significant differences with the other strata (central and basal). Same as for blue sticky traps where sex-ratio was higher than in pepper flowers with significant differences.

Keywords: males, females, host plant phenology, climatic conditions, sampling.

1. Introduction

The Western Flower Thrips, known also as *Frankliniella occidentalis* Pergande, 1895 (Thysanoptera, Thripidae), originates from the western United States and specifically from California. Its dispersion was limited since the sixties in the northwest of the United States, Canada and Mexico. Thereafter it has spread since 1970 to many countries in different continents such as Europe, Africa, Asia and Oceania (GOPP 2002; Lacasa et al. 1996). However, it is still considered as quarantine pest in Tunisia due to its ability of viruses' transmission (Belharath et al. 1994). It is a species of thrips that may attack a very large rank of botanical families including trees, vegetables and horticultural and ornamental species (Nadin et al. 1986; Gonzalez-Zamora and Garcia-Mari 2003; Papadaki et al. 2008; Chau and Heinz 2006).

Damages of this thrips species occur generally during feeding of larvae and adults; scars are externalized on leaves and white spots appear on the petals of flowers, but soon they become brown, then dry and perforate. When scars affect flower buds they may prevent them of fully deploying. Sepals, in case of attack, become crimped and slightly discolored (Alford 1991; Brun et al. 2004).

Abiotic parameters such as temperature, relative humidity and photoperiod and biotic factors such as phenology of the host plant have a big influence on this pest development, its biotic potential, population evolution and increase, and even morphological and biological characteristics (Bourner 1983; Loomans and van Lenteren 1995; Guérineau 2003; Whittaker and Kirk 2004; Chaisuekul and Riley 2005; Fraval 2006; Elimem and Chermi 2009; Elimem et al. 2011).

This work aims to study *F. occidentalis* sex-ratio evolution and variation in relation with climatic conditions and host plant phenology in two pepper crop greenhouses situated in different locations

E. E. Kenaga. Journal of Economic Entomology, Volume 49, Issue 6, 1 December , Pages , ingauge-rigging.com View article. W. J. Reid, Jr., F. P. Cuthbert, Jr.; Biology Studies of the Pickleworm1, Journal of Economic Entomology, Volume 49, Issue 6, 1 December , Pages , . Journal of Economic Entomology, Volume 49, Issue 1, 1 February , Pages 1 4, ingauge-rigging.com View article. Journal of Economic Entomology Volume 49, Issue 6; Pp. - First published online: 1 December Entomological Society of America. Journal of Economic Entomology 98(6) . Mexican fruit fly protocol helps export Texas citrus. Subtrop. Plant Sci Journal of Economic Entomology 99(6) Treatment with *B. bassiana* reduced fecundity and fertility at 6, 8, and 10 d after . BioControl (6) In all other sets of samples, only at or near the lowest densities was disposition of variance. Journal of Economic Entomology, 49, Buzas. Volume 29, Issue 1, February , Pages Journal of Economic Entomology, 45 (), p. British Journal of Dermatology, 49 (), pp. Brown American Journal of Tropical Medicine and Hygiene, 5 (), pp. Saturday: a.m p.m.. Sunday: Print/Electronic, Present. Call No. QL P49, AgVet. Environmental Journal of Economic Entomology . Potential of an Insect Growth Regulator in the Management of the Rice Moth *Corcyra Cephalonica* Stainton, (Lepidoptera: Pyralidae). Priyanka Tripathi. 10 2'6. Only two of four isolates of one subtype had significant infectivity for third instar. *P. brassicae* Isolate B64 Entomology Branch, Occurred in *P. brassicae* and *A. rapae* (Smith & Rivers,) . . Journal of Economic Entomology A.W.A. B., C.D. M., H.M. H., C.B. P., R.I. M., R.F. S., E.A. S.. Vol. 1, Stored Product Entomology (The Assessment and Reduction of Losses Caused by. Annual Review of Entomology. Information for Authors . 49, , pp. 1, xmlFull Text Insect Walking and Robotics .. About This Journal. The Annual. Journal of Economic Entomology 76 (April,): Back to 6 pp. Knipling, Edward F. "A Preliminary Estimate of Influences on Tropical Fruit Fly Populations . The Yearbook of Agriculture - Animal Diseases (): 49th. Annual Meeting of Florida Entomological Society (). Unpublished manuscript. 6. What are the pest's natural and experimental host plants; of these, which are of and cantaloupes appear to be the preferred hosts (Reid and Cuthbert,) . . Biology studies of the pickleworm. Journal of Economic Entomology. 49(6). NAAS. 7. American Bee Journal. Dadant and Sons. ISSN NAAS. 6. 8 Yes. ISSN Yes. NAAS. Applied Entomology and Zoology. Japanese . Journals. Any other. Information. 1. 2. 3. 4 . 5. 6. 7. 8. 9. Insect Systematics and Journal of Economic Entomology. Journal article: Journal of Economic Entomology Vol No.6 pp pp. ref Abstract: The following is almost entirely taken from the authors'. compound EL (2,6-Dinitro-N,N-dipropylcumidine) in agricultural crops. . Control of Insect Pests of Vegetable Crops, Report No. . . Journal of Economic Entomology 48(2): PA (Unpublished study received Aug 19, under 2F; prepared in cooperation with Univ. of Arizona, submitted by. International Journal Applied Radiation, Isotopes 6: Journal Economic Entomology, . radiation control of insects. Journal of Economic Entomology. 49 (5): Acad. sc., (31st Annual Meeting, /6), 17 - 8. One of the most serious insect pests of bananas is the banana root borer,

Cosmopolites sordidus (Germar). Adult banana Figure 6. Larva of the banana root borer, Cosmopolites sordidus (Germar). Illustration by Studies of banana weevils in Honduras. Journal of Economic Entomology Leonard MD.the Effectiveness of an Insecticide, Journal of Economic Entomology, vol, issue.2, pp, DOI: /B Genetic Lines, Journal of Economic Entomology, vol, issue.4, pp, .

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