

***Drosophila suzukii* (Diptera: Drosophilidae): A pest species new to Belgium**

Jonas Mortelmans^{1,*}, Hans Casteels² & Tim Beliën³

¹ Sint-Martensblindeken 37, 9000 Ghent, Belgium.

² Institute for Agricultural and Fisheries Research, Burg. Van Gansberghelaan 96, 9820 Merelbeke, Belgium.

³ pcfruit vzw, Zoology Department, Fruittuinweg 1, 3800 Sint-Truiden, Belgium.

* Corresponding author: jonasmortelmans@gmail.com

KEY WORDS: Spotted wing *Drosophila*, *Drosophila suzukii*, invasive pest species, Belgium.

The Asian fruit fly ('spotted wing drosophila', *Drosophila suzukii* MATSUMURA, 1931) has been detected for the first time in Belgium in 2011. This species of Asian origin was first reported in North America in 2008 and in Europe in 2009 (1, 2, 3). *D. suzukii* has become a notorious pest in North America, causing severe losses in fruit production (4). In Europe, only a few reports of considerable crop damage from *D. suzukii* can be found (1, 5). Here we discuss the arrival of *D. suzukii* in Belgium and give recommendations for its identification and pest management.

On 21 September, 2011, a single male of the spotted wing drosophila, *Drosophila suzukii*, was captured in Ostend, Belgium (altitude 4 m ab. s. l.). This highly fecund species differs from most other members of the Drosophilidae in its ability to infect healthy ripening fruit instead of overripe, rotting fruit (1). *D. suzukii* can infect healthy soft-bodied fruit such as blueberries, blackberries, raspberries, cherries, or strawberries, and can even infect hard fruit such as apples and pears (4). After infestation, secondary parasites and invaders, such as *Drosophila melanogaster*, Nitidulidae, *Botrytis* and *Rhizopus* spp. often contribute to further fruit deterioration. These characteristics make *D. suzukii* an economically important pest species that requires management to the full extent possible.

The first reported detection of *D. suzukii* in Europe was in 2008 in Rasquera, Spain (1). Until late 2011, European detection of *D. suzukii* had been limited to dry Mediterranean climates. Now, together with observations in Germany, also in autumn 2011 (6, 7), the discovery in Belgium is of great importance since these are the first records of the species in the more temperate northwest-European regions. Ecological simulations seem to indicate that those Mediterranean conditions are not optimal for the growth of *D. suzukii* (2). Up to now, the only report of crop damage in Europe due to *D. suzukii* was the publication of LEE et al. (2011), who reported crop destructions of up to 80% in Trentino, Italy. However, HAUSER (2009) suggested that *D. suzukii* could develop into a serious pest in the more humid northwest European areas.

Several reports of *D. suzukii* in Europe can be found on the Internet, but published literature is scarce. After its detection in 2008 in Spain, the species was found in 2009 in several southern European areas: southern France (Montpellier, Languedoc-Roussillon, Provence-Alpes-Côte d'Azur, Corsica, Alpes-Maritimes), Spain (Barcelona) and Italy (Piemonte, Trentino, Tuscany).

Unconfirmed records from Portugal were made available through a media report (1, 9, 10). In 2010, the fly was reported in Slovenia (11). The first northern European report was from HENDRICH et al. (2012), who mentioned first sightings of the species in the German provinces Baden-Württemberg, Bavaria and Rhineland-Palatinate in 2011. Recently, *D. suzukii* was

detected in the Swiss locations of Graubünden and Tessin (12), and in Austria (11).

The species seems to spread rapidly across the European mainland in a similar manner to the extensive and rapid spread across North America. Adults are highly mobile within a local area, but long-distance dispersal probably occurs via transport of infected fruit. The *D. suzukii* fly detected in Ostend, Belgium could have been imported with infected fruit from the nearby harbour in Zeebrugge. The Belgian authorities are vigilant for the presence of the fly and rely on the Institute for Agricultural and Fisheries Research (ILVO, Plant Sciences Unit - Crop Protection research area) for information about the presence of this species in Belgium. The Belgian Federal Agency for the Safety of the Food Chain (FASFC) will perform a quickscan monitoring program in 2012 to determine whether *D. suzukii* is settling in Belgium. In addition, the Belgian fruit research center (pcfruit) plans to investigate the potential spread and phytosanitary impact of

D. suzukii in the major fruit growing regions of Belgium (13). Traps with attractants to gather *D. suzukii* were put on the market in February 2012 (14). This monitoring is crucial because quick intervention can prevent crop damage and further spread of the pest. Damage can be prevented by immediately removing the flies and physically destroying infested fruit as fast as possible (4).

The spotted wing drosophila is easy to identify. Males can be identified based on the spots in the tip of their wing and the two sets of tarsal combs. Females have a long and narrow ovipositor with many dark sclerotized teeth (15). Further information on identification can be found in Hauser (2011). In Figures 1 & 2, the habitus of the male and the typical tarsal combs are illustrated.

All observations of *D. suzukii* (even in cases of doubt) should be reported to the corresponding author listed above, to the authorities, and to the research centers as quickly as possible.

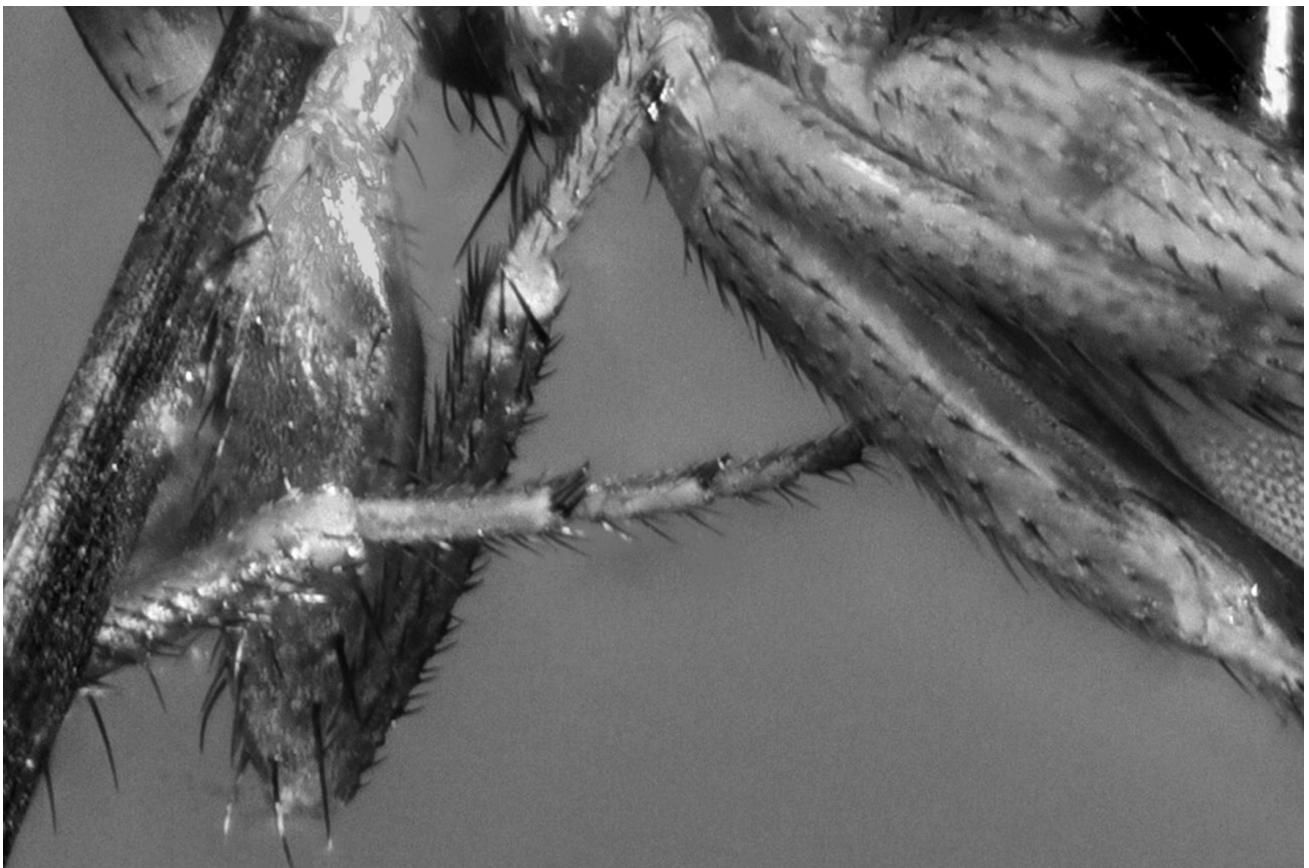


Fig. 1. – Detail of the male tarsal combs.



Fig. 2. – Habitus of the Belgian specimen of *Drosophila suzukii*

ACKNOWLEDGEMENTS

The authors would like to thank Jan Máca, Martin Hauser and Jens-Hermann Stuke for their help and comments on the distribution. Miriam Levenson for reviewing the English manuscript and Gert Arijs for his photographs of the Belgian specimen.

REFERENCES

1. CALABRIA G, MACA J, BACHLI G, SERRA L & PASCUAL M (2010). First records of the potential pest species *Drosophila suzukii* (Diptera: Drosophilidae) in Europe. *Journal of Applied Entomology*, 134 : 1-9.
2. HAUSER M, GAIMARI S & DAMUS M (2009). *Drosophila suzukii* new to North America. *Flytimes*, 43-12-15.
3. STECK G, DIXON W & DEAN D (2011). Spotted Wing Drosophila, *Drosophila suzukii* (Matsumura) (Diptera: Drosophilidae), a Fruit Pest New to North America (Internet address: http://www.freshfromflorida.com/pi/enpp/ento/drosophila_suzukii.html).
4. DREVES AJ, WALTON V & FISHER G (2009). A new pest attacking healthy ripening fruit in Oregon: Spotted wing drosophila, *Drosophila suzukii* (Matsumura) (Internet address: http://berrygrape.org/files/Dsuzukii_alert.pdf).
5. LEE J, BRUCK DJ, DREVES A, LORIATTI C, VOGT H & BAUFELD P (2011). In focus: Spotted wing drosophila, *Drosophila suzukii*, across perspectives. *Pest Management Science*, 67: 1349–1351.
6. HENDRICH L, DOCZKAL D & BAUFELD P (2012). Münchener Forscher entdecken gefährlichen Pflanzenschädling. *Pressemitteilung*. (Internet address: www.faanabavarica.de).
7. HEUCK P (2012). *Drosophila suzukii* erstmals für Deutschland (Diptera: Drosophilidae). *Nachrichtenblatt Bayern Entomologic*, 61 (1/2): 46.

8. COMMONWEALTH OF AUSTRALIA (2010). Draft pest risk analysis report for *Drosophila suzukii*. (Internet address: http://www.daff.gov.au/data/assets/pdf_file/0009/1825497/pra-report-drosophila-final.pdf).
9. MANDRIN JF, WEYDERT C & TROTTIN-CAUDAL Y (2010). Un nouveau ravageur des fruits: *Drosophila suzukii*, Premiers dégâts observés sur cerises. Infos Centre Technique Interprofessionnel des Fruits et Légumes, 266: 26-33.
10. GRASSI A, PALMIERI L & GIONGO L (2009). *Drosophila (Sophophora) suzukii* (Matsumura) – New Pest of Small Fruit Crops in Trentino. Terra Trentina, 10: 19-23.
11. NACHHALTIGE PFLANZENPRODUKTION (2011). Kirschessigfliege. (Internet address: <http://www.ages.at/ages/landwirtschaftliche-sachgebiete/pflanzengesundheit/obstbau/kirschessigfliege/>).
12. HISS S (2011). Die Kirschessigfliege (*Drosophila suzukii*) wurde in der Schweiz erstmals im Juli 2011 an Beeren im Tessin und in Graubünden festgestellt. (Internet address: <http://www.wein-news.com/index.php/2011/09/neuer-schadling-in-der-schweiz-entdeckt/>).
13. BELIËN T (2012). Aziatische fruitvlieg is bezig aan opmars in Europa: waakzaamheid is geboden! Fruitteeltnieuws, 23: 32-33.
14. BIOBEST (2012). New: Droso-trap against *Drosophila suzukii*. (Internet address: <http://www.biobest.be/nieuws/169/3/0/>).
15. HAUSER M (2011). A historic account of the invasion of *Drosophila suzukii* (Matsumura) (Diptera: Drosophilidae) in the continental United States, with remarks on their identification. Pest Management Science, 67: 1352-1357.

Received: March 2nd, 2012

Accepted: August 1st, 2012

Branch editor: Hendrickx Frederik