

The HLB Bibliographic Database: a free tool for information

By Pilar Vanaclocha and Philip A. Stansly

The huanglongbing (HLB) or citrus greening Bibliographical Database (http://www.imok.ufl.edu/programs/entomology/hlb_db.php) was created in 2009 by the entomology group at the University of Florida's Southwest Florida Research and Education Center (SWFREC) in collaboration with the Florida Center for Library Automation at the University of Florida. The database was funded through July 2012 by the Citrus Research and Development Foundation, and is funded now by the (California) Citrus Research Board. The database provides, in a single location, a wealth of information related to HLB as well as its psyllid vectors and causal agents (*Candidatus liberibacter* spp.).

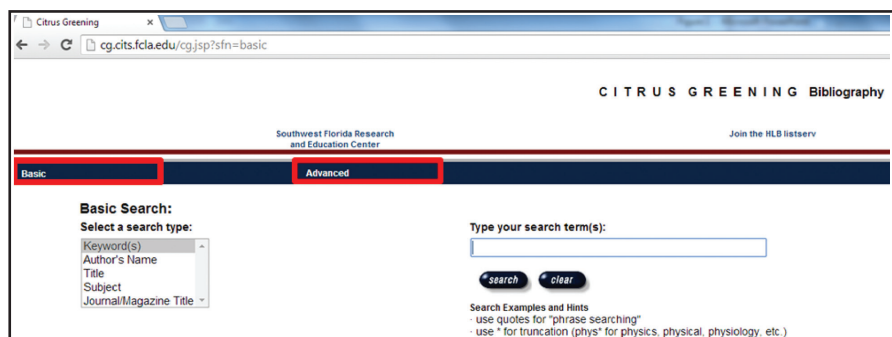
Diaphorina citri, the Asian citrus psyllid, now occurs in all citrus-growing regions of Asia, North and South America, and HLB generally follows close behind. In lieu of the "magic bullet," effective strategies are needed to slow the spread through vector control and inoculum reduction, and mitigate effects of the disease through improved horticultural practices. Given the severity of HLB, research efforts are redoubling worldwide with a consequent burgeoning of the literature.

The objective of the database is to make this information easily available in a single location and at no cost to the user. The aim of the database is to provide rapid and easy access to the most current as well as historical documents related to the biology, epidemiology or management of HLB. Knowledge is power, and more rapid and efficient access to information should ultimately streamline implementation of effective technologies to manage this disease.

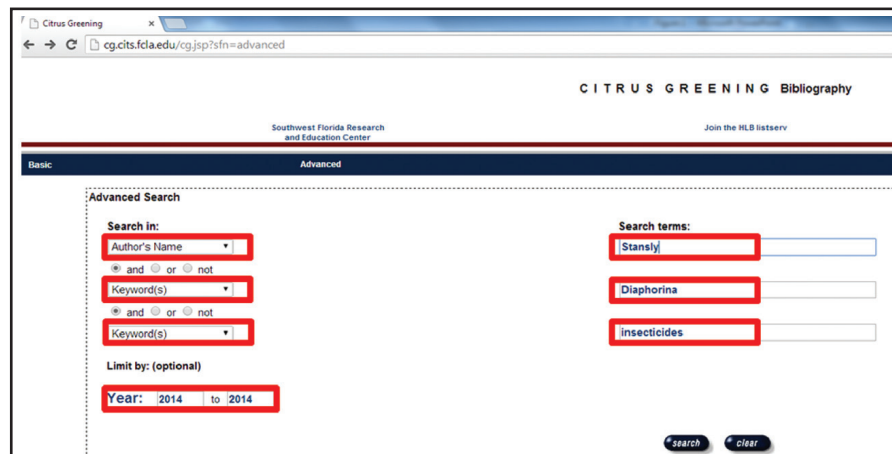
The database contains more than 3,400 references which cover refereed and non-refereed publications, proceedings, presentations, project reports, Extension publications, periodicals, dissertations, book chapters and abstracts. Approximately 92 percent of these are linked to original sources and, therefore, provide direct access to the complete documents. References are from around the world



Step 1. Go to the entomology section of the SWFREC webpage (http://www.imok.ufl.edu/programs/entomology/hlb_db.php). The easiest way is to search "HLB database" in Google. Click "Start Searching HLB Database" or "Online Searches" and then "Search HLB Database."



Step 2. The user is directed by default to the "basic search mode." Search terms can be typed in here or select "advanced" search from the top bar.



Step 3. The Advanced Search screen includes three "Keywords" windows, each with three search options (Author's Name, Title and/or Journal/Magazine Title), plus a window for delimiting years. As an example, we will choose "Stansly" as author's name, "*Diaphorina*" and "insecticides" as Keyword(s), and we will limit the search to the year 2014.

and primarily in English, although there are some in Spanish, Portuguese, French, Japanese and Chinese. The

database must be constantly updated with new references to remain current, and continue to offer a valuable ser-

vice to the citrus community.

The HLB database site is located on the Entomology Program section of the SWFREC University of Florida/IFAS website. Basic searches can be carried out by selecting a search type (Keyword, Author's Name, Title, Subject, Journal/Magazine Title). Advanced searches can be made by combining more than one search type and/or a range of publication years. Searches go directly to the original sources, providing direct access to the documents.

Pilar Vanaclocha is a post-doctoral associate and Philip A. Stansly is a professor, both at the University of Florida-IFAS's Southwest Florida Research and Education Center at Immokalee.

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Basic | Advanced

Found: 1
Search: author_text (Stansly) AND Diaphorina AND insecticides AND hostdate_facet (2014 TO 2014)

Narrow Results By:

- Subject:**
 - conservation biological control (1)
 - huanglongbing (1)
 - population growth rate (1)
 - predator exclusion (1)
 - side effects (1)
- Year:**
 - 2014 (1)
- Author:**
 - Monzo, C. (1)
 - Qureshi, J. A. (1)
 - Stansly, P. A. (1)
- Journal Title:**
 - Bulletin of Entomological Research (1)

1. Insecticide sprays, natural enemy assemblages and predation on Asian citrus psyllid, *Diaphorina citri* (Hemiptera: Psyllidae)
Author: Monzo, C., Qureshi, J. A., Stansly, P. A.
Found In: Bulletin of Entomological Research vol. Bulletin of Entomological Research (2014), p. 1-10
Links: <http://dx.doi.org/10.1017/S0007485314000315>
http://www.imok.ufl.edu/hlb/database/pdf/17_Monzo_14.pdf

Step 4. An output screen will come up with search results according to the selected parameters. In this example, the search provides only one reference. This screen also includes all search terms used by the database to find this document: Subjects (Keywords), Year, Authors and Journal Title.

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Record: 1 of 1
Search: author_text (Stansly) AND Diaphorina AND insecticides AND hostdate_facet (2014 TO 2014)

Author(s): Monzo, C., Qureshi, J. A., Stansly, P. A.

Title: Insecticide sprays, natural enemy assemblages and predation on Asian citrus psyllid, *Diaphorina citri* (Hemiptera: Psyllidae)

Found In: Bulletin of Entomological Research vol. Bulletin of Entomological Research (2014), p. 1-10

Abstract: The Asian citrus psyllid (ACP), *Diaphorina citri* Kuwayama is considered a key citrus pest due to its role as vector of 'huanglongbing' (HLB) or citrus greening, probably the most economically damaging disease of citrus. Insecticidal control of the vector is still considered a cornerstone of HLB management to prevent infection and to reduce reinoculation of infected trees. The severity of HLB has driven implementation of intensive insecticide programs against ACP with unknown side effects on beneficial arthropod fauna in citrus agroecosystems. We evaluated effects of calendar sprays directed against this pest on natural enemy assemblages and used exclusion to estimate mortality they imposed on ACP populations in citrus groves. Predator exclusion techniques were used on nascent colonies of *D. citri* in replicated large untreated and sprayed plots of citrus during the four major flushing periods over 2 years. Population of spiders, arboreal ants and ladybeetles were independently assessed. Monthly sprays of recommended insecticides for control of ACP, adversely affected natural enemy populations resulting in reduced predation on ACP immature stages, especially during the critical late winter/early spring flush. Consequently, projected growth rates of the ACP population were greatest where natural enemies had been adversely affected by insecticides. Whereas, this result does not obviate the need for insecticidal control of ACP, it does indicate that even a selective regimen of sprays can impose as yet undetermined costs in terms of reduced biological control of this and probably other citrus pests.

Keywords: conservation biological control, huanglongbing, population growth rate, predator exclusion, side effects

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Links: <http://dx.doi.org/10.1017/S0007485314000315>
http://www.imok.ufl.edu/hlb/database/pdf/17_Monzo_14.pdf

Source no.: 5659

Step 5. Clicking on the title of the article takes you directly to a screen displaying all this information plus the abstract and a link to a pdf of the original source, if available.

Insecticide sprays, natural enemy assemblages and predation on Asian citrus psyllid, *Diaphorina citri* (Hemiptera: Psyllidae)

C. Monzo*, J.A. Qureshi and P.A. Stansly
 Entomology and Nematology Department, University of Florida/IFAS, Southwest Florida Research and Education Center, Immokalee, FL, USA

Abstract

The Asian citrus psyllid (ACP), *Diaphorina citri* Kuwayama is considered a key citrus pest due to its role as vector of 'huanglongbing' (HLB) or citrus greening, probably the most economically damaging disease of citrus. Insecticidal control of the vector is still considered a cornerstone of HLB management to prevent infection and to reduce reinoculation of infected trees. The severity of HLB has driven implementation of intensive insecticide programs against ACP with unknown side effects on beneficial arthropod fauna in citrus agroecosystems. We evaluated effects of calendar sprays directed against this pest on natural enemy assemblages and used exclusion to estimate mortality they imposed on ACP populations in citrus groves. Predator exclusion techniques were used on nascent colonies of *D. citri* in replicated large untreated and sprayed plots of citrus during the four major flushing periods over 2 years. Population of spiders, arboreal ants and ladybeetles were independently assessed. Monthly sprays of recommended insecticides for control of ACP, adversely affected natural enemy populations resulting in reduced predation on ACP immature stages, especially during the critical late winter/early spring flush. Consequently, projected growth rates of the ACP population were greatest where natural enemies had been adversely affected by insecticides. Whereas, this result does not obviate the need for insecticidal control of ACP, it does indicate that even a selective regimen of sprays can impose as yet undetermined costs in terms of reduced biological control of this and probably other citrus pests.

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Step 6. Clicking on the source link brings up a pdf of the original source, which will open with a personal copy that can be saved on the user's computer.