



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 801234

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Challenges for the citrus sector: PRE-HLB, preventing HLB for ensuring citrus survival in Europe



Leandro Peña – PreHLB coordinator

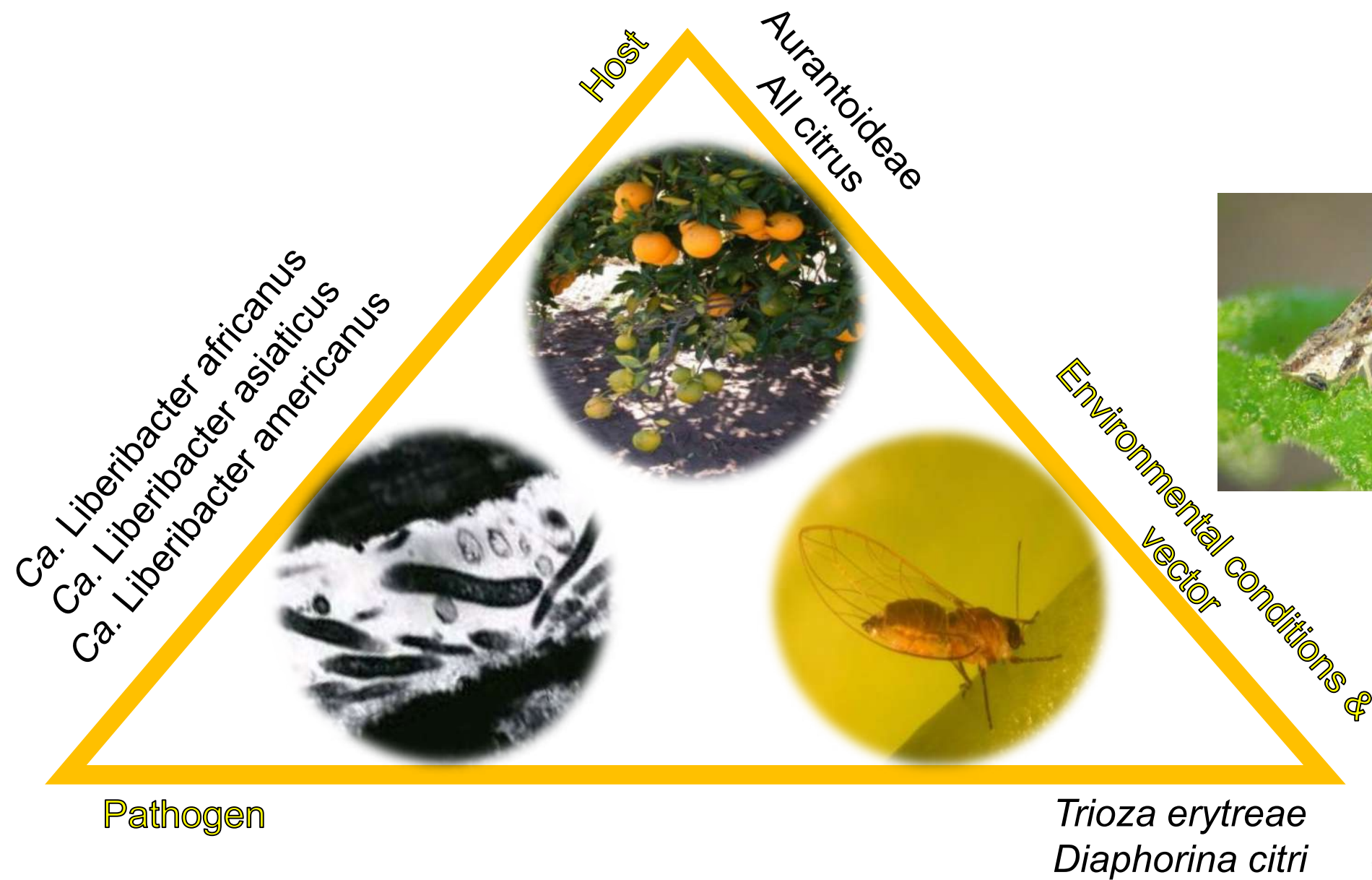
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Huanglongbing



Huanglongbing symptoms

Yellow shoots and branches

The first symptomatic leaves usually appear in the upper third of the tree



- 1) Defoliation
- 2) Dry branches
- 3) Decline



Huanglongbing symptoms

Small lopsided fruits that remain green and taste bitter. Vascular necrosis and seed abortion



Peduncular end stained orange

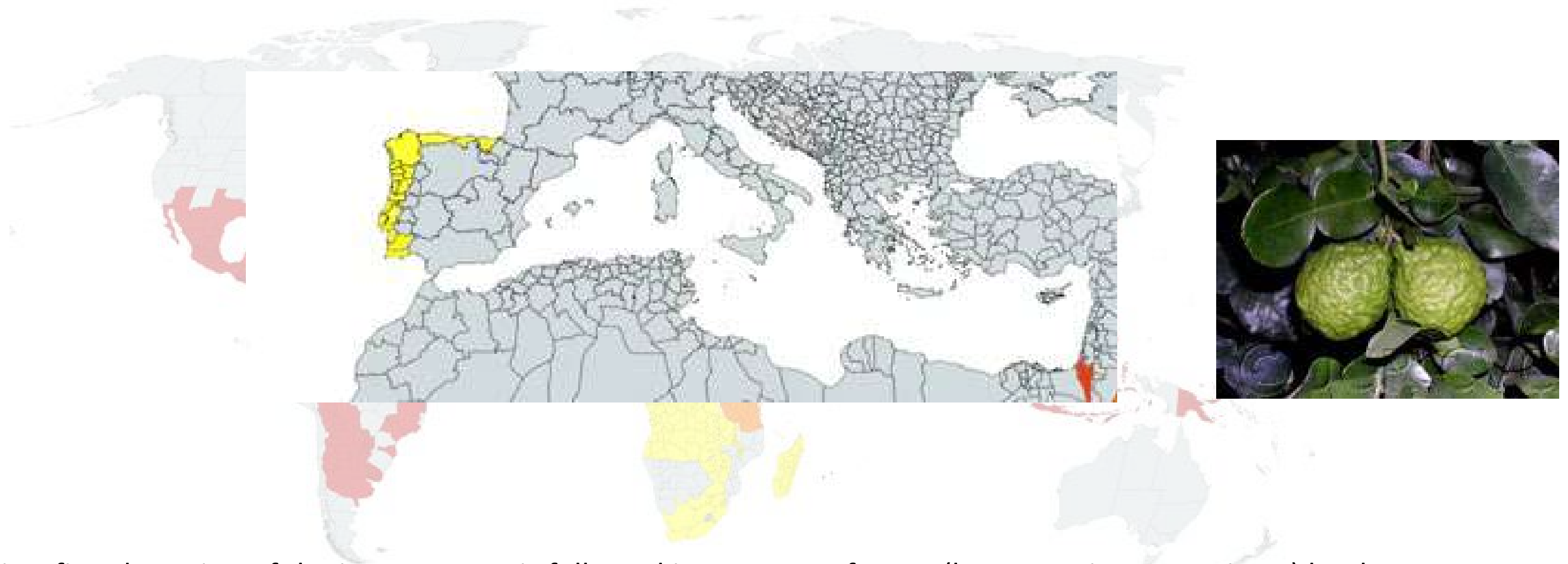
Premature fruit fall



Color inversion

Huanglongbing: distribution of insect vectors in the Mediterranean until 2023

■ *Diaphorina citri* ■ *Trioza erytreae*



In almost all countries, first detection of the insect vector is followed in a matter of years (less years in recent times) by the detection of the HLB-associated bacterium/a.

August 2023, Findings of *Diaphorina citri* in Cyprus:



Main cultivation of Citrus fruit production: 1, 2, 3

Small scale Citrus fruit production areas: 4, 5, 6, 7

Findings: ★
No Findings: ★





Distribution of *Trioza erytreae*, the African psyllid vector of HLB

IBERIAN PENINSULA: CURRENTLY PRESENT IN THE ENTIRE CANTABRIAN COAST, FROM GALICIA TO THE BASQUE COUNTRY, AND ALONG THE ENTIRE COASTLINE OF PORTUGAL, FROM OPORTO TO ALGARVE

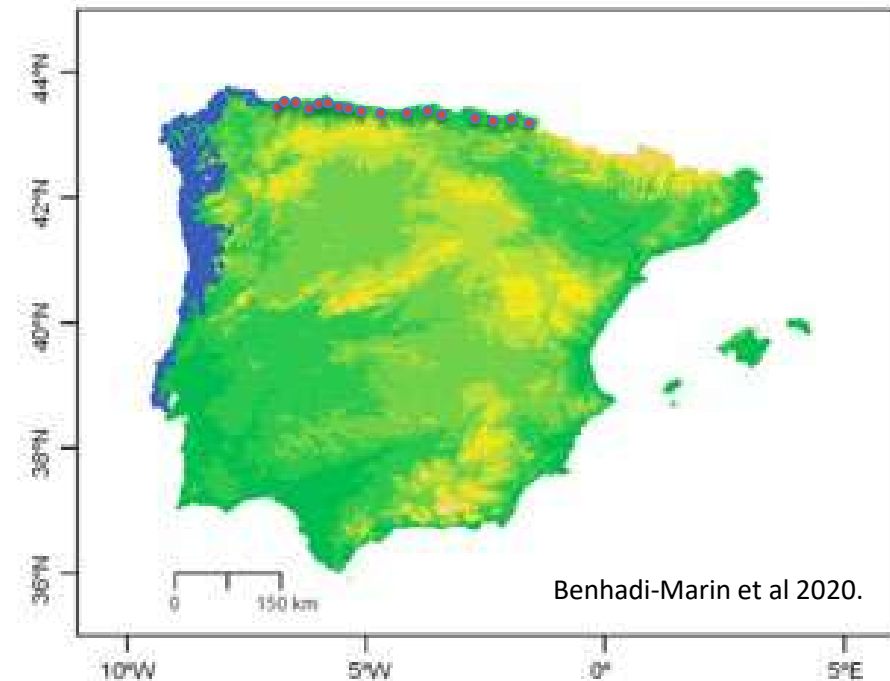


Fuente : CABI: <https://www.cabi.org/isc/datasheet/54914>

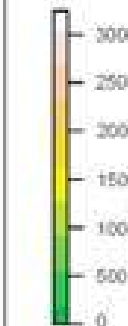
First Detection in PT -1994 (Madeira)

In SP (Canary Islands) – 2002

Iberian Peninsula (Pontevedra & Oporto) (2015)



● Presence 2020-21



October 2021: it was detected in Ajelzur (Algarve)

Importance of HLB

Table 5: Percentiles of the uncertainty distributions of the proportion of yield loss [%] caused by species with effect on yield of citrus fruits

Species with effect on yield of citrus fruits			Percentiles of the proportion of yield loss [%]												
Class	Species	EPPO code/host	1%	5%	10%	17%	25%	33%	50%	67%	75%	83%	90%	95%	99%
BACTERIA	<i>Candidatus Liberibacter</i> spp. (citrus greening)	LIBEXX/citrus	17.7%	29.8%	37.7%	45.0%	52.0%	57.8%	67.8%	76.7%	81.1%	85.7%	89.8%	93.5%	97.6%
INSECTS	<i>Thaumatotibia leucotreta</i>	ARGPLE/citrus	7.4%	11.5%	14.1%	16.7%	19.3%	21.7%	26.2%	31.0%	33.8%	37.4%	41.2%	45.8%	54.3%
BACTERIA	<i>Xanthomonas citri</i>	XANTCI/high impact citrus	1.8%	3.1%	4.2%	5.5%	7.0%	8.5%	12.2%	17.4%	21.3%	27.2%	35.2%	47.6%	83.6%
BACTERIA	<i>Xylella fastidiosa</i>	XYLEFA/citrus	0.1%	0.7%	1.5%	2.8%	4.5%	6.4%	10.9%	16.2%	19.4%	23.1%	26.7%	30.2%	34.4%
INSECTS	<i>Bactrocera dorsalis</i>	DACUDO/citrus	0.6%	1.6%	2.5%	3.5%	4.7%	5.9%	8.6%	11.9%	14.2%	17.2%	20.9%	25.7%	36.4%
INSECTS	<i>Anoplophora chinensis</i>	ANOLCN/citrus	2.5%	3.5%	4.3%	5.0%	5.8%	6.6%	8.3%	10.3%	11.7%	13.6%	16.0%	19.3%	27.4%
INSECTS	<i>Bactrocera zonata</i>	DACUZO/citrus	0.4%	1.2%	2.0%	2.9%	4.0%	5.0%	7.3%	9.9%	11.7%	13.9%	16.5%	19.8%	26.5%
FUNGI	<i>Anastrepha ludens</i>	ANSTLU/citrus, peaches	0.9%	1.5%	1.9%	2.4%	3.0%	3.6%	4.9%	6.8%	8.1%	10.0%	12.5%	16.3%	26.7%
BACTERIA	<i>Xanthomonas citri</i>	XANTCI/medium impact citrus	0.2%	0.7%	1.2%	1.8%	2.6%	3.3%	4.9%	6.8%	8.1%	9.8%	11.8%	14.3%	19.5%
FUNGI	<i>Phyllosticta citricarpa</i>	GUIGCI/citrus	0.1%	0.2%	0.4%	0.7%	1.0%	1.3%	2.1%	3.1%	3.9%	4.9%	6.2%	7.8%	11.7%

EFSA (2019) Scientific report on the methodology applied by EFSA to provide a quantitative assessment of pest-related criteria required to rank candidate priority pests

Potential distribution of HLB in EU

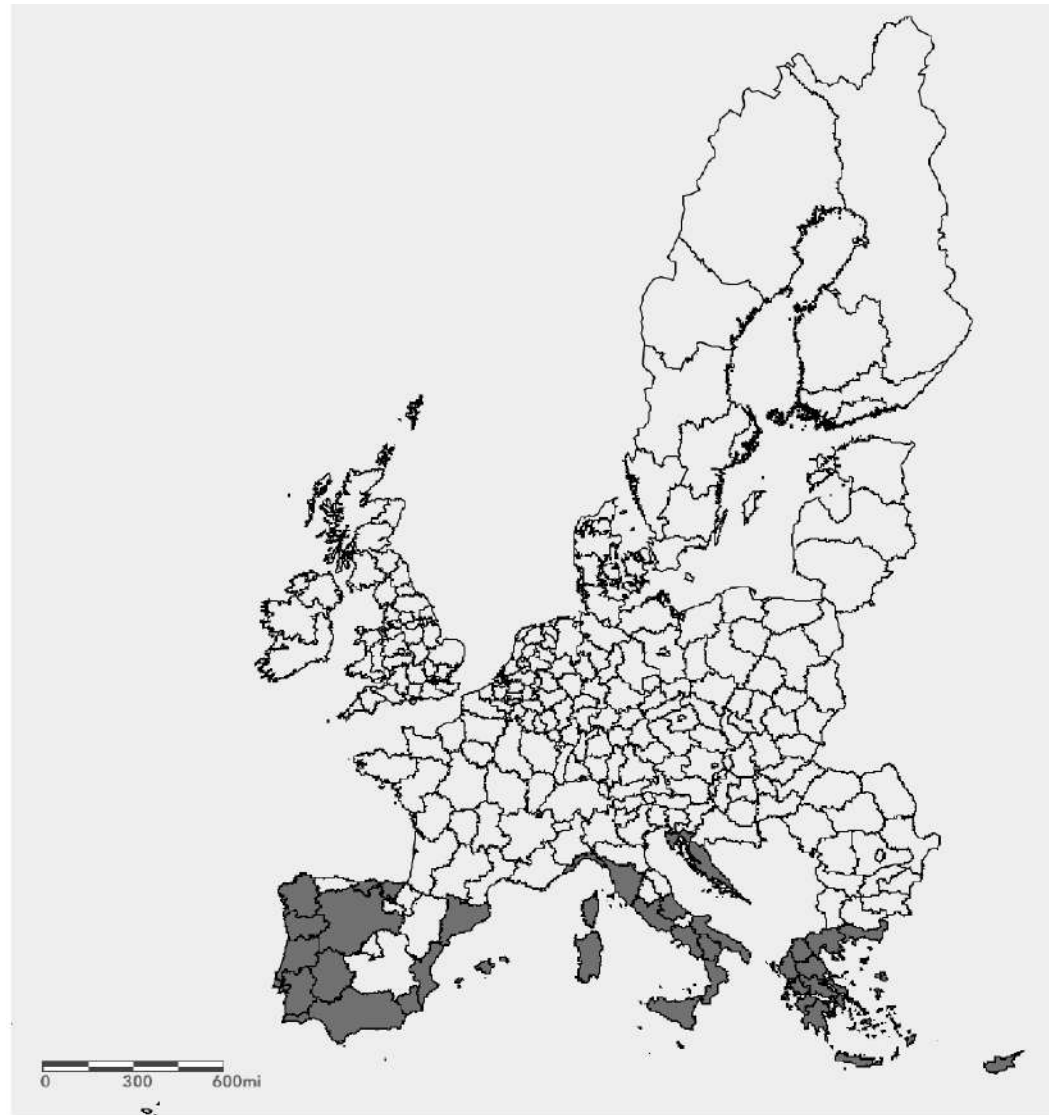


Figure 7 The potential distribution of the pest in the EU NUTS2 regions based on the scenarios established for assessing the impacts of the pest by the EFSA Working Group on EU Priority Pests (EFSA, 2019). This link provides an online interactive version of the map that can be used to explore the data further: <https://arcg.is/1Lv5vr>

EFSA (2019) *Candidatus Liberibacter* Pest Report to support ranking of EU candidate priority pests. Baker R, Gilioli G, Behring C, Candiani D, Gogin A, Kaluski T, Kinkar M, Mosbach-Schulz O, Neri FM, Preti S, Rosace MC, Siligato R, Stancanelli G and Tramontini S. Doi: 10.5281/zenodo.2788904

Importance of HLB

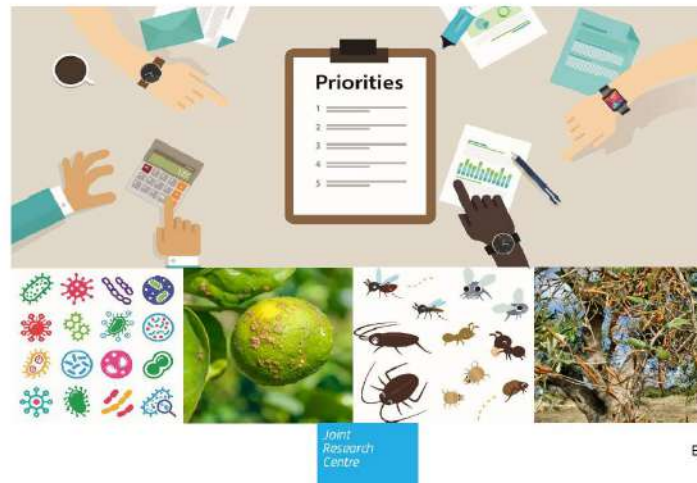


JRC TECHNICAL REPORTS

The Impact Indicator for Priority Pests (I2P2): a tool for ranking pests according to Regulation (EU) No 2016/2031

Sánchez, Berta
Barreiro-Hurle, Jesús
Soto Embodas, Iria
Rodríguez-Cerezo, Emilio

2019



Economic impact indicators:

- Production losses and value
- Trade
- Price and market
- Others

Social impact indicators:

- Employment
- Food security and food safety
- Landscape or cultural heritage

Environmental impact indicators:

- Biodiversity and ecosystem
- Parks and natural areas
- Other undesired impacts of control measures

JRC (2019) Sánchez, B; Barreiro-Hurle, J; Soto Embodas, I; Rodríguez-Cerezo, E, 29793 2019, ISBN 978-92-76-08785-4, doi:10.2760/585182, JRC116973.

SCIENTIFIC OPINION

ADOPTED: 26 November 2020

doi: 10.2903/j.efsa.2021.6357

Pest categorisation of *Diaphorina citri*

EFSA Panel on Plant Health (PLH),
Claude Bragard, Katharina Dehnen-Schmutz, Francesco Di Serio, Paolo Gonthier,
Marie-Agnès Jacques, Josep Anton Jaques Miret, Annemarie Fejer Justesen,
Christer Sven Magnusson, Panagiotis Milonas, Juan A Navas-Cortes, Stephen Parnell,
Roel Potting, Philippe Lucien Reignault, Hans-Hermann Thulke, Wopke Van der Werf,
Antonio Vicent Civera, Jonathan Yuen, Lucia Zappalà, Virag Kertesz, Franz Streissl and
Alan MacLeod

The European Commission requested EFSA to provide categorizations of pests of harmful organisms included in the annexes to the Directive 2000/29 / CE, in cases where no recent pest risk assessment or classification is available.

For all this, EFSA adopted a Scientific Opinion on pest categorization on November 26, 2020 that has been published on January 6, 2021 specifically on *Diaphorina citri*.

D. citri has moderate dispersal potential by itself but can spread longer distances by hitchhiking on recycled fruit and fruit boxes. Wind-assisted dispersal can be important. The movement of plants may be another way of propagation; it should be noted that as of May 2020, **there have been 21 records of interception of *D. citri* in the Europhyt database. The 21 interceptions were made on *Murraya spp.***

Based on the literature mentioned in the report, **a pest risk analysis conducted by ANSES (2019) highlights that southern Portugal, eastern Spain, Corsica, southern Italy, Greece, Croatia, Cyprus and Malta show favourable conditions for the establishment of *D. citri*.**

COMMISSION DELEGATED REGULATION (EU) 2019/1702
of 1 August 2019

supplementing Regulation (EU) 2016/2031 of the European Parliament and of the Council by
establishing the list of priority pests

List of priority pests

- Agrilus anxius* Gory
- Agrilus planipennis* Fairmaire
- Anastrepha ludens* (Loew)
- Anoplophora chinensis* (Thomson)
- Anoplophora glabripennis* (Motschulsky)
- Anthonomus eugenii* Cano
- Aromia bungii* (Faldermann)
- Bactericera cockerelli* (Sulc.)
- Bactrocera dorsalis* (Hendel)
- Bactrocera zonata* (Saunders)
- Bursaphelenchus xylophilus* (Steiner et Bühner) Nickle *et al.*
- Candidatus Liberibacter* spp., causal agent of Huanglongbing disease of citrus/citrus greening
- Conotrachelus nenuphar* (Herbst)
- Dendrolimus sibiricus* Tschetverikov
- Phyllosticta citricarpa* (McAlpine) Van der Aa
- Popillia japonica* Newman
- Rhagoletis pomonella* Walsh
- Spodoptera frugiperda* (Smith)
- Thaumatotibia leucotreta* (Meyrick)
- Xylella fastidiosa* (Wells *et al.*)

Candidatus Liberibacter spp., causal agent of Huanglongbing disease of citrus/citrus greening

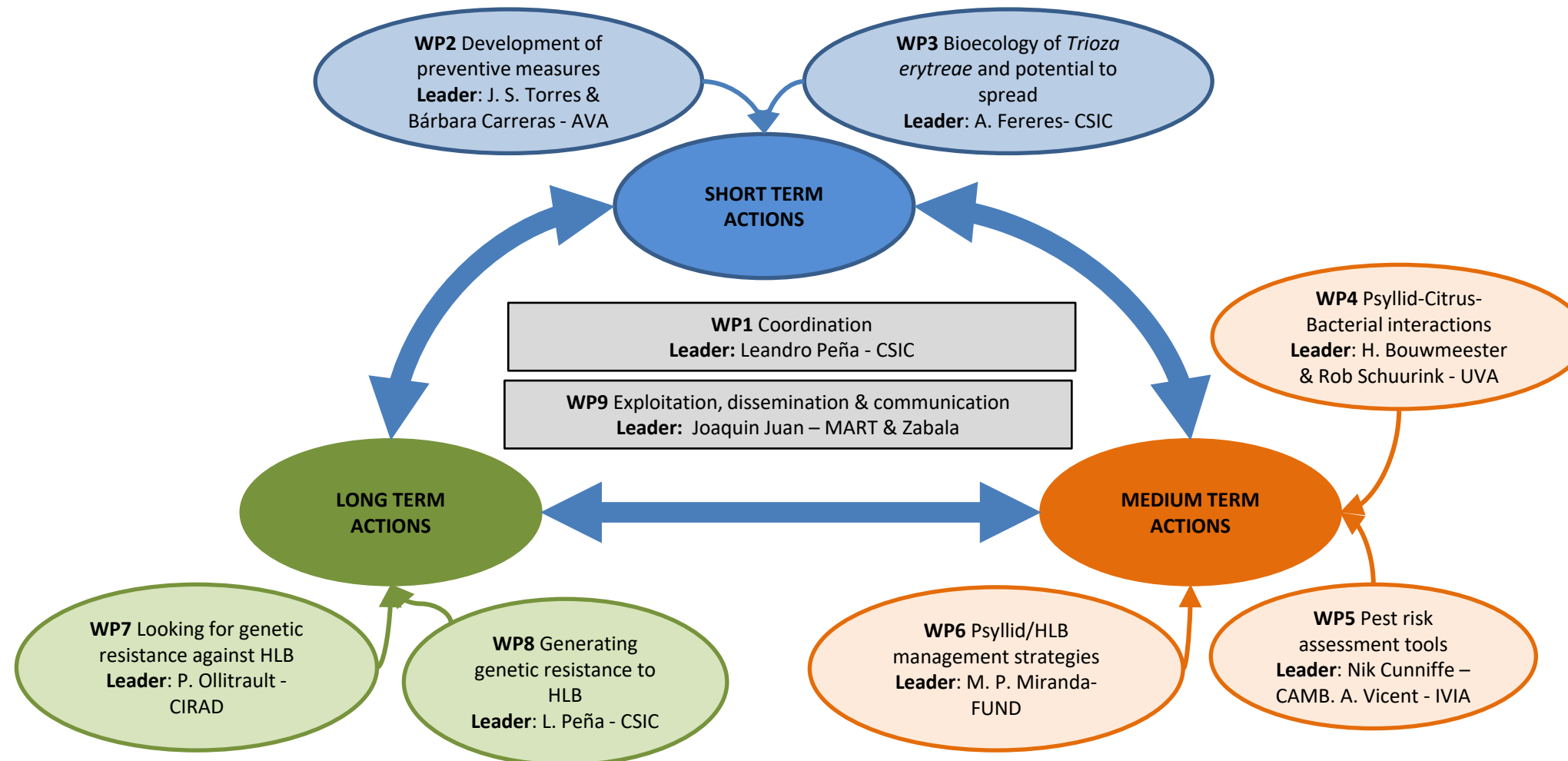
- Annual surveillance mandatory, but surveillance programs were not defined
- Outbreak response, but demarcation and control measures were not defined





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The overall objective of the PreHLB project is to develop and implement a comprehensive contingency plan to protect EU citrus farming from the causative agents of HLB and create new solutions to manage the disease through a multidisciplinary approach and in collaboration with experienced partners from America and Asia.

Scientific institutions: CSIC, ARO, IPB, CREA, CIR, CNR, IVIA, EMB, CAMB, UDUR, UVA, ALG, UNICT, UHUN

Private companies: MARTINAVARRO, KOPPERT, VAL

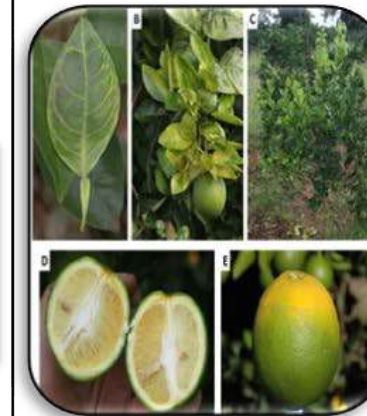
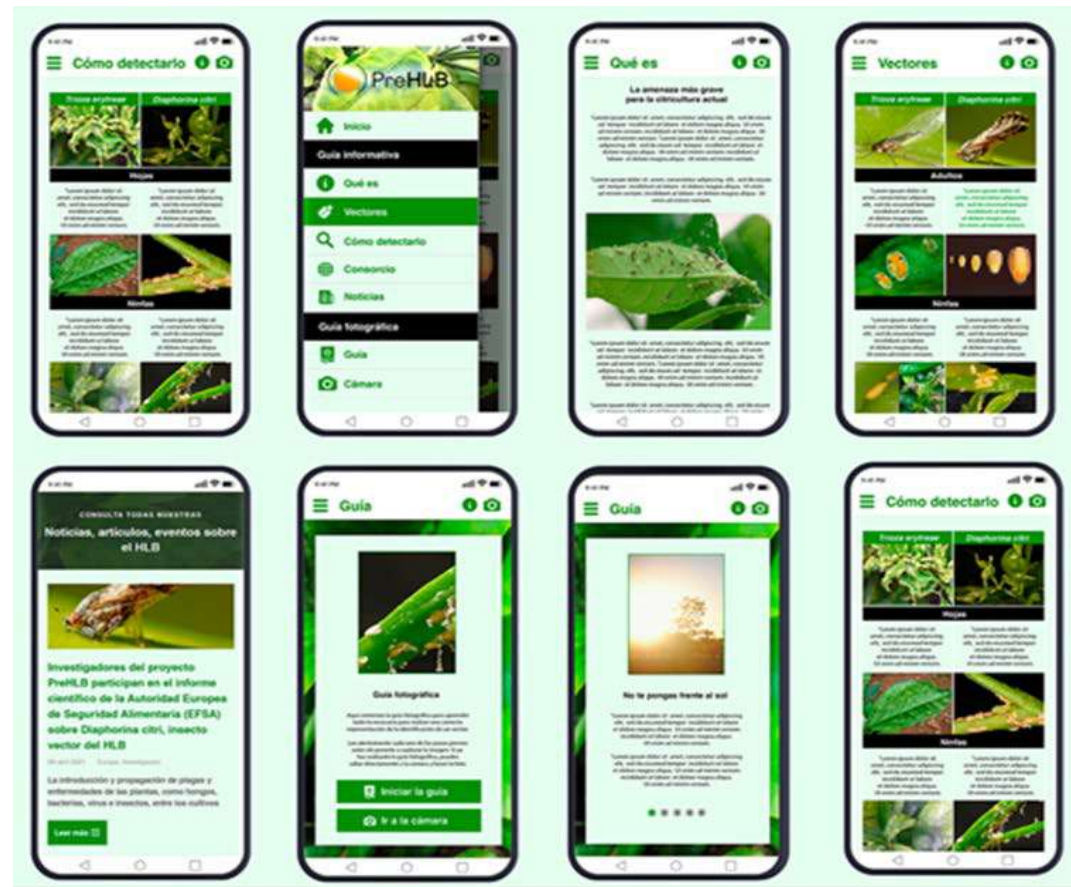
Grower associations: AVA, FRUSOAL, FUND

Phytosanitary authorities: AGROAMBIENT, EPPO, USDA



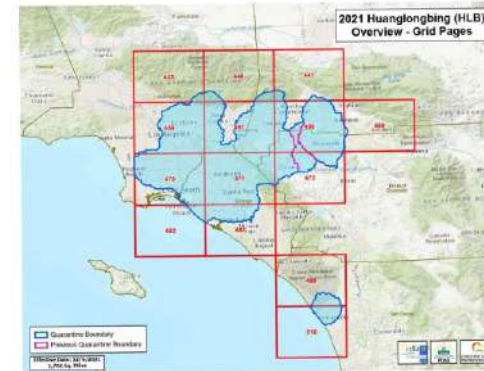
Huanglongbing: SHORT-TERM MEASURES

- Disclose the threat HLB represent for EU citriculture. Establish a communication network on HLB.
- Train farmers in identifying HLB symptoms/psyllid vectors.
- Monitor the spread of African psyllid and prevent the entry of Asian psyllid.
- Increase our knowledge about vector biology.
- Propose an updated contingency plan for the EU.



Huanglongbing: MEDIUM-TERM MEASURES

- Development of sustainable and environmentally friendly management strategies: biological and cultural control of the vector. Antimicrobial and insecticidal peptides. Sensitive methods for detecting infection by the bacteria in infected, still asymptomatic plants and in infected insects.
- Develop pest risk assessment tools.
- Establish large-scale prospecting zones and regional management. Citrus Health Management Areas (CHMAs).

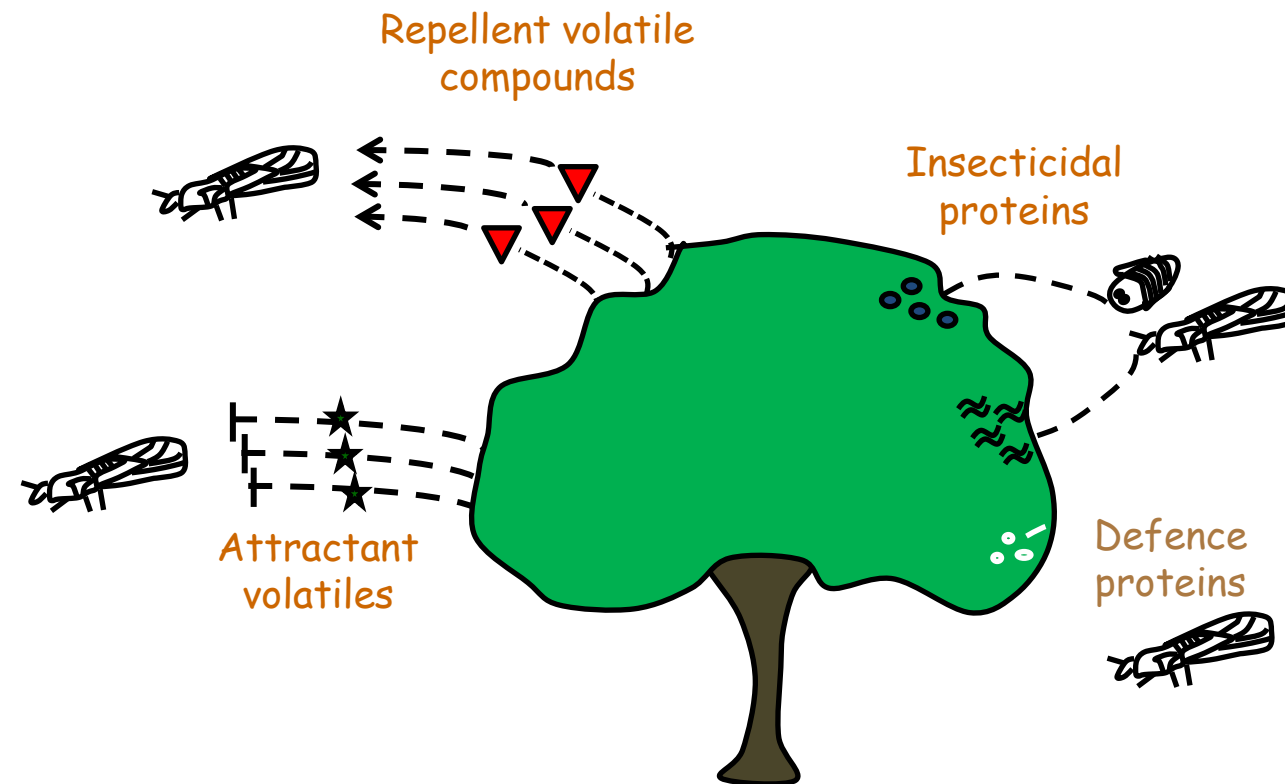


Huanglongbing: LONG-TERM MEASURES

- Generation of genetic resistance to organisms associated with HLB, through breeding and/or through biotechnological strategies.
- Development of new biocontrol agents.



Resistance in Microcitrus & Eremocitrus



Proposal for a

REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

**on plants obtained by certain new genomic techniques and their food and feed, and
amending Regulation (EU) 2017/625**



Regulation 2016/2031

Due to their higher impact, priority pests have compulsory measures in order to reduce the risk of introduction and spread in the EU territory.

Priority pests:

- **Surveys and eradication** are prioritized for **EU co-financing**.
- **National Contingency Plans** must be approved (unless their establishment is not possible).
- **Action Plans** (concrete measures for the eradication of the pest) must be carried out when its presence is officially confirmed.
- **Simulation exercises** on the application of contingency plans must be carried out in all Member States and for all priority pests (unless the Member State has already adopted eradication measures for a priority pest).
- **Annual surveys** should be carried out with a sufficient number of visual examinations, sampling and analysis.

Contingency Plan for HLB and its vectors

First adopted in Spain in November 2015

- Survey program (detection survey):
 - Nurseries and garden centres
 - Orchards
 - Gardens (public & private)
 - Fairs, etc
- Eradication program:
 - Delimiting surveys
 - Establishment of Demarcated Areas
 - Eradication measures



Valencian Contingency Plan for HLB and its vectors

First adapted to Valencian situation in 2016

- Survey program (detection survey):
 - Nurseries and garden centres
 - Orchards
 - Gardens (public & private)
 - Fairs, etc
- Eradication program:
 - Delimiting surveys
 - Establishment of Demarcated Areas
 - Eradication measures



PLAN DE CONTINGENCIA de la COMUNITAT VALENCIANA

'*Candidatus Liberibacter* spp.'
bacterias asociadas a la enfermedad del
huanglongbing o greening de los
cítricos y sus insectos vectores.

DIRECCIÓN GENERAL DE PRODUCCIÓN AGRARIA, GANADERÍA Y PESCA
SERVICIO DE SANIDAD VEGETAL

Royal Decree 115/2023 (before RD23/2016)

Legal enforcement

Royal Decree 115/2023 establishes the national control and eradication program for *Trioza erytreae* and the national prevention program for *Diaphorina citri* and *Candidatus Liberibacter* spp.

- Obligations of the agents involved
- Surveys and controls
- Official confirmation and immediate actions:
 - If the presence of the vectors is confirmed (T.e. and/or D.c.)
 - If the presence of HLB is confirmed
 - If the presence of HLB and any of the vectors is confirmed
- Plant material and plant products movement restrictions in and from demarcated areas
- Compensation, public utility and sanctions

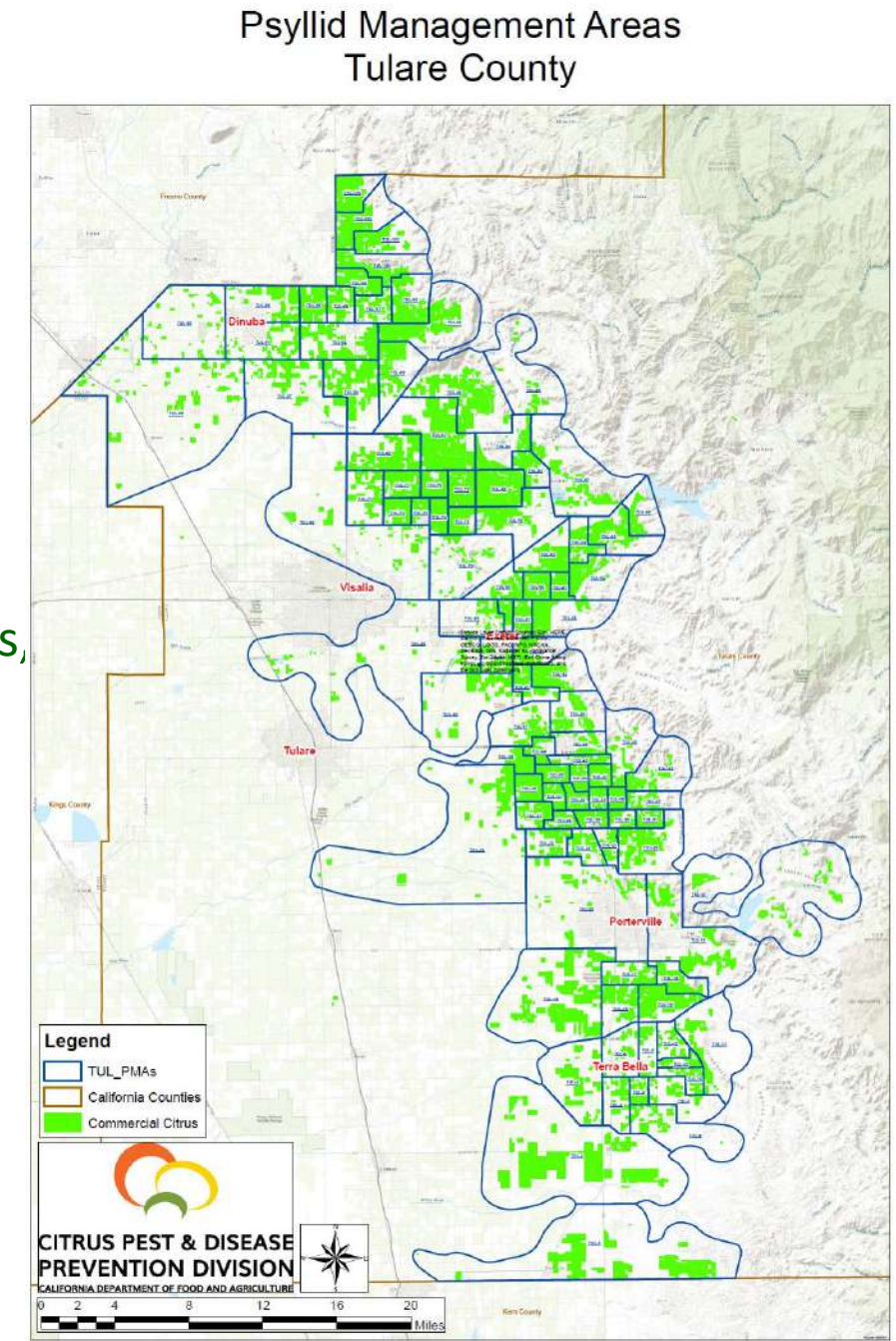
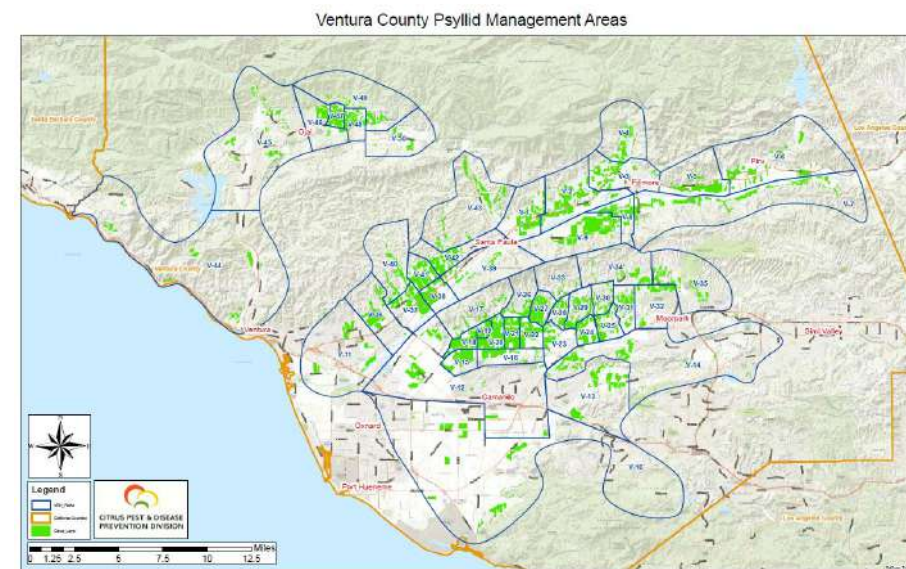
Contingency Plan for HLB and its vectors

Main changes proposed through PreHLB:

- Establishment of Citrus Health Management Areas (CHMAs) for vector management.
- Delimiting a minimum area of 1,5 Km around a suspect case. Isolation of suspect plant material and access restrictions to the suspect orchard/premise.
- Sub-division of the management area (region) into smaller zones (counties). Designate a “grower liaison” responsible for each small zone: workgroups, constant communication with growers, stakeholders and authorities.
- Measures to limit the movement of the vector with bulk fruits from the orchard.
- Compulsory removal of abandoned citrus orchards, mainly in demarcated areas.
- Addition of mass rearing and releases of *Tamarixia radiata* in case of detection of *Diaphorina citri* (residential areas).
- Compulsory host plant material production under physical protection.

Main changes proposed through PreHLB:

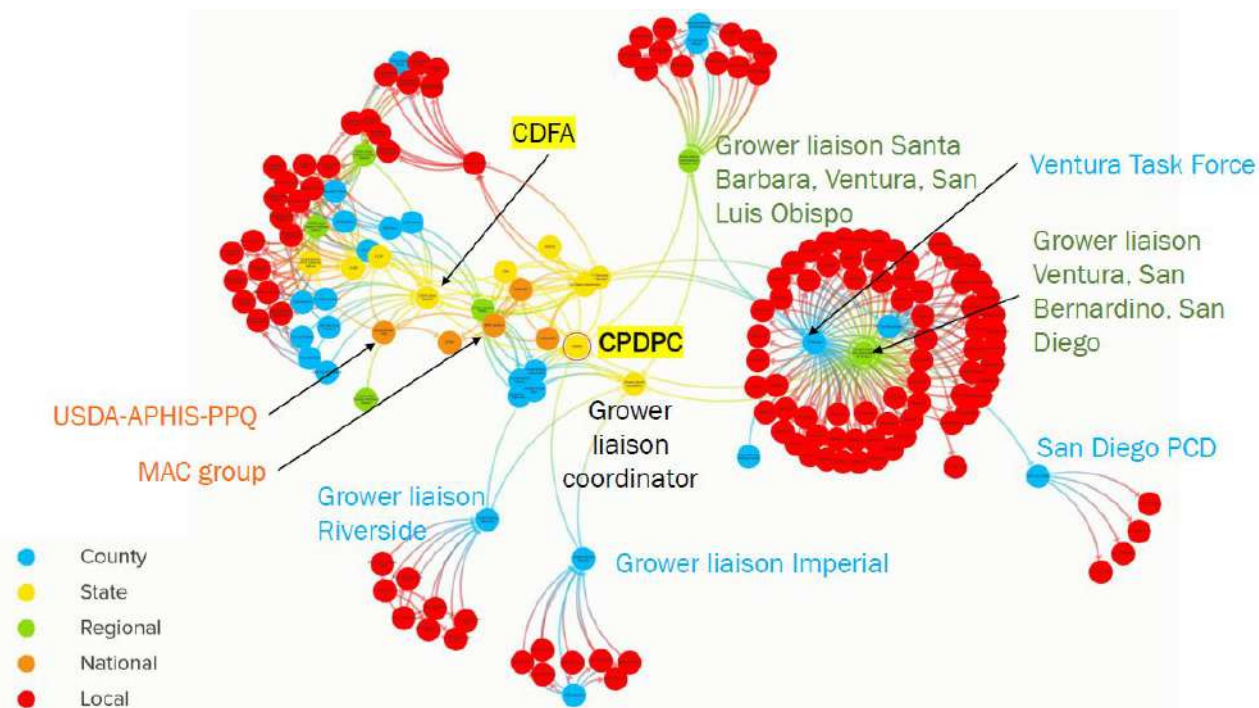
- Establishment of Citrus Health Management Areas (CHMAs), for vector management
- Crucial especially in areas of small groves/farms
- Coordinate compulsory treatments (Psyllids Quarantine Enforcement)
- Cooperatives/municipalities/irrigation communities could lead every CHMAs, under guidance of the competent authorities



Contingency Plan for HLB and its vectors

Main changes proposed through PreHLB:

- Sub-division of the management area (region) into smaller zones (counties). Designate a “grower liaison” responsible for each small zone: workgroups, constant communication with growers, stakeholders, local and regional authorities.



Contingency Plan for HLB and its vectors

Main changes proposed through PreHLB:

- Measures to limit the movement of the vector with bulk fruits from the orchard.

Citrus shipped, regardless of their origin or destination, must be covered or shipped in an enclosed container or vehicle

When fruits are shipped out of a demarcated area, insecticide treatment prior to movement

Ban of movement of fruits with leaves and peduncles out of a demarcated area



Contingency Plan for HLB and its vectors

Main changes proposed through PreHLB:

- Compulsory removal of abandoned citrus orchards, mainly in demarcated areas.



Contingency Plan for HLB and its vectors

Main changes proposed through pre-HLB:

Include mass rearing and releases of *Tamarixia radiata* in case of detection of *Diaphorina citri*

- *T. dryi* is already included in the Contingency plan, but *T. radiata* in case of ACP outbreak was left
- Biological control is useful in urban and peri urban areas, where isolated citrus plants could be difficult to find



Contingency Plan for HLB and its vectors

Main changes proposed through PreHLB:

- Compulsory host plant material production under physical protection (nurseries biosecurity)



Dissemination activities to increase awareness

Publications, factsheets, webinars, conferences, technical seminars, field guides, posters, videos etc.

2º WEBINAR
EL HLB. TÉCNICAS DE GESTIÓN PREVENTIVAS
PROYECTO PRE-HLB

17:00h Presente: **ANTONIO CRISTIANA MARIÑEZ**
DIRECTOR GENERAL DE AGRICULTURA, GANADERÍA Y PESCA
Modera: **VICENTE DALMAU** - REFI DE SERVICIO DE SANIDAD VEGETAL

MIÉRCOLES 15 DE JUNIO DE 2021

17:20-17:40h GENERALIDADES DE LA ENFERMEDAD Y RIESGOS EN LA CITRICULTURA DEL MEDITERRANEO.
LEANDRO PÉRA (EMICP-CSIC)

17:40-18:00h GESTIÓN DEL VECTOR *Trioxa erythrae* Y MEDIDAS DE PREVENCIÓN CONTRA LA INTRODUCCIÓN EN PORTUGAL.
AMÉLIE DUARTE (UNIVERSIDADE DO ALGARVE)

18:00-18:30h GESTIÓN SANITARIA DE ÁREAS CITRÍCOLAS – CHINA (CITRUS HEALTH MANAGEMENT AREAS).
RENATO BEGOZZO (BASAGNI) (FUNDECITRUS)

18:30-19:00h VECTORES POTENCIALES. SITUACIÓN ACTUAL EN ESPAÑA Y PORTUGAL. MEDIDAS DE LUCHA.
ALBERTO FERRER (ICA-CSIC)

19:00-19:30h PREGUNTAS A LOS PONENTES.

MIÉRCOLES 16 DE JUNIO DE 2021

17:00-17:30h TÉCNICAS DE DETECCIÓN. KITS ESPECÍFICOS.
ANA GILSPO (SEMIPRE) (VALENTICUS)

17:30-18:00h REPERCUSIÓN DE LAS IMPORTACIONES REGALES. IMPORTANCIA DE LA CERTIFICACIÓN.
LUIS NAVARRO (ASESOR) (CSIC)

18:00-18:30h GESTIÓN SANITARIA DE ÁREAS CITRÍCOLAS EN CALIFORNIA.
SARA GARCÍA FIGUEROA (UNIV. DE CALIFORNIA-DAVIS)

18:30-19:00h PREGUNTAS A LOS PONENTES Y CLAUSURA

INSCRIPCIÓN AL EVENTO

PRONICAP

ibmcp

Funecitrus

ICA

CSIC

UCDAVIS

Jornada de presentación de resultados del proyecto PRE-HLB para la prevención del greening en la citricultura mundial

29 de Septiembre de 2023
Finca Siment de AVA-ASAJA
(Polinyà de Xúquer)

Programa

9:00 - 9:15 am Registro y recepción de los participantes.

9:15 - 9:30 am Apertura del evento y preocupación del sector. Cristóbal Aguado (AVA-ASAJA).

9:30 - 10:00 am Introducción al Huanglongbing. Características, sistematología y distribución geográfica. Toni Vicent (IVA).

10:00 - 10:30 am

- Proyecto Pre-HLB: Estrategias de control y manejo de la enfermedad. Leandro Péra (CSIC).
- Experiencias de otros países en la lucha contra el Huanglongbing. Juliana Ayres (FUNDECITRUS).

10:30 - 11:00 am Pausa café.

11:00 - 11:30 am Actuaciones de la Conselleria de Agricultura. Vicent Dalmau (Conselleria Agricultura).

11:30 - 12:00 pm Estrategia de lucha contra el HLB. Alberto Ferrer (CSIC).

12:00 - 12:30 pm Presentación de la App de detección temprana del HLB y sus vectores. Iván Llorca (Icarat).

12:30 - 13:00 pm Debate: Futuros pasos ante la amenaza de la entrada del HLB. Rapheal Mordhin (CIRAD).

13:00 - 13:15 pm Conclusiones y cierre del evento. Javier Barriante (Secretario Autonómico de Agricultura Ganadería y Pesca).

Inscripciones

A través del formulario: <https://forms.gle/uSjyA1w7s8Yv0z27>

Monitor your trees
Do not import twigs or branches from other countries
Contact the Plant Health Service of your province

GENERALITAT VALENCIANA
CONSELLERIA DE PRESIDÈNCIA I AGRICULTURA, PESCA, ALIMENTACIÓ I AIGUA
DIRECCIÓ GENERAL DE PRODUCCIÓ AGRÀRIA I RAMADERIA
SANITAT VEGETAL

Nota informativa *Trioxa erythrae* (psílido africano de los cítricos)

La psila africana (*Trioxa erythrae*) es un insecto chupador del orden Hemiptera, perteneciente a la familia Trioxidae.

Nombres comunes
Psílido africano de los cítricos, African citrus psyllid

Distribución geográfica
Es originaria de África. Se encuentra ampliamente distribuida en África y con distribución restringida en Asia y Europa.

Distribución en España y zonas próximas
No se ha detectado la presencia de esta plaga en la Comunitat Valenciana. En el año 1994 se detectó en Madeira y en 2002 en Canarias. Recientemente han aparecido focos en el noroeste de la Península Ibérica, en Galicia y Portugal.

Hospedantes
Trioxa erythrae vive exclusivamente sobre plantas de la familia Rutaceae, afectando a los cultivos de cítricos (naranjos, limones, pomelos y mandarinas), y a diversas plantas ornamentales de esta familia.

Descripción
Adulto: Sin alas y móvil, con alas transparentes, accidentalmente presentan un color más pálido y posteriormente toman un color marrón claro. Se asemeja a los psídeos, mide de 3 a 4 mm de longitud. Se alimentan de las hojas adoptando una posición característica con el abdomen levantado en una posición de 180° respecto a la superficie de alimentación.

El periodo medio de vida de las hembras es de un mes.

Foto cedida por Dr. Felipe Suarez (ICAR)

MANUAL DE CAMPO
para la Prevención del HLB
(HUANGLONGBING)

GENERALITAT VALENCIANA
CONSELLERIA DE PRESIDÈNCIA I AGRICULTURA, PESCA, ALIMENTACIÓ I AIGUA
DIRECCIÓ GENERAL DE PRODUCCIÓ AGRÀRIA I RAMADERIA
SANITAT VEGETAL

PreHLB

El HLB y el futuro citrícola: situación y perspectivas

Valencia, 2 de marzo de 2016

RSEAPV
REAL SOCIEDAD ECONOMICA
D'AMICS DEL PAÍS DE VALÈNCIA

RSEAPV
REAL SOCIEDAD ECONOMICA DE
AMIGOS DEL PAÍS DE VALÈNCIA

GENERALITAT VALENCIANA
CONSELLERIA DE AGRICULTURA, MEDIO AMBIENT, CAMBIO CLIMÀTIC I DESARROLLO RURAL

PSILA AFRICANA (*Trioxa erythrae* (Del Guercio))

1. Adulto
2. Huevo
3. Psila
4. Huevo
5. Psila
6. Huevo

Descripción
Insecto hemíptero de la familia Trioxidae.
Los adultos son alargados y de color verde oscuro al emerger y al poco oscurecen. Las alas son transparentes (foto 1). Se sitúan en los brotes muy tiernos, donde se agrupan y realizan la puesta (foto 2). Las hembras son amarillentas, cítricas, apuradas. Se pueden detectar en grupos o solitarias. Una hembra puede producir entre 2.000 huevos. Las ninfas, son planas, ovaladas, se alimentan sacando la succion de la hoja. Para por cinco ninfas naranjas. La ninfas de último estadio (foto 5) se vuelven de verde amarillento a gris oscuro, apreciándose los ojos compuestos del futuro adulto. Posee un característico reborde formado por flecos como filarquesos. Emite olores, sobre la que se desarrolla el hongo neopila o fumagina. Los machos son más pequeños que las hembras, tiene el abdomen redondeado mientras que las hembras lo tienen apurado.
Los adultos, al alimentarse, levantan ligeramente el abdomen, formando un ángulo de 25 grados. En la actualidad, solo está presente en las Islas Canarias.

Síntomas y daños
La característica más destacada, es la deformación de brotes y hojas tiernas, con aparición de múltiples abollamientos por el virus, que se convierten en necrosis, por el mismo, donde se sitúan las ninfas (foto 4).
Los daños los ocasionan los insectos, al succionar la savia por el estilo local, en ataques intensos pueden provocar la detención del crecimiento del brote. El daño más importante se produce al

Sentido Imagen: 187
Al: Page: 1

Ficha coleccionable: Plagas exóticas
Guerra Agraria Nº 378, 2001, 400-450

***Trioxa erythrae* (Del Guercio), Hemiptera: Trioxidae**
African citrus psyllid, en inglés.

Origen
África subsahariana

Estados
Listo 11 de la CIPF
Presente en Camerún y en Malawi

Hospedantes
Alimento de los cítricos, solo siendo posible alimentarse de ellos cuando el insecto de origen africano y a veces más en el fruto fresco. Los frutos con madurez, donde el insecto puede alimentarse de ellos cuando el insecto de origen africano y a veces más en el fruto fresco. Los frutos con madurez, donde el insecto puede alimentarse de ellos cuando el insecto de origen africano y a veces más en el fruto fresco.

Daños
Este insecto afecta generalmente los cítricos (figura 1), que pueden presentar graves síntomas de estrés. Una plaga de él puede reducir la producción del crecimiento del cítrico, causado por la pérdida de la capacidad de absorber los nutrientes de las raíces, causado por la pérdida de la capacidad de absorber los nutrientes de las raíces, causado por la pérdida de la capacidad de absorber los nutrientes de las raíces.

Manejo integrado
Algunos países han utilizado de ellos con resultados a corto plazo, sin datos de manejo a largo plazo. Algunos países han utilizado de ellos con resultados a corto plazo, sin datos de manejo a largo plazo.

Control
El control puede ser difícil por los hábitos de estos insectos, que se agrupan en grandes cantidades en los brotes y en las hojas tiernas, y por el hecho de que en la actualidad no se conocen los vectores de transmisión de la enfermedad.

A: Autor: A. Mendieta
Conselleria d'Agricultura i Medi Ambient
1991 (Guerra de la Plaga)
VIA

AG Agricultores Y Ganaderos
Número 204 - Enero-Marzo 2018

La citricultura en alerta máxima

La detección en Galicia del insecto transmisor del greening obliga a tomar medidas excepcionales

COLOQUIO IVIA ONLINE

ESTRATEGIAS PARA LA PREVENCIÓN Y CONTROL DE HLB EN ESPAÑA Y CALIFORNIA

Martes 6 de octubre de 2020 | 16:30

GENERALITAT VALENCIANA
Conselleria d'Agricultura i Medi Ambient

ivia
Institut Valencià d'Investigacions Agràries

UCDAVIS
UNIVERSITY OF CALIFORNIA

ct AGRICULTURA, ALIMENTAZIONE E AMBIENTE
crea
PreHLB
Europa
EUROPEAN UNION
SICILIA

Seminario
Stato dell'arte e interventi per la prevenzione dell'introduzione e della diffusione di HLB in Italia

L'Università degli Studi di Catania
Consiglio per la ricerca in agricoltura e l'analisi dell'economia agraria Distretto Produttivo Agrumi di Sicilia

9 maggio 2022
Dipartimento di Agricoltura, Alimentazione e Ambiente - Aula Magna
Via S. Sofia 100 - Catania

PreHLB
MED
amar terra
Associação Regional de Agricultura
UAlg FCT
UNIVERSIDADE DO ALGARVE

Seminário sobre a distribuição de *Trioxa erythrae* no Algarve e a ameaça do HLB

Programa:
A psila-africana-dos-citros. Riscos associados à praga e necessidade de controlo no Rogil. Amílcar Duarte & Rita Poeira | UALG
Os inimigos da cultura dos citrinos "*Trioxa erythrae*" e HLB. Ponto de situação no Algarve Celestino Soares | DRAP Algarve

18/Março/2022
Junta de Freguesia do Rogil
15h00

Dissemination activities to increase awareness

Workshop with relevant entities in the phytosanitary field and regional governments to discuss the contingency plans.

PARTICIPATING IN



eip-agri

AGRICULTURE & INNOVATION



*Preventing HLB epidemics for
ensuring citrus survival in Europe*

June 2 from 16-18 h (CET)
Online: GotoWebinar Platform

Registration:
<https://tinyurl.com/fc9h4tw6>



funded by



European
Commission

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 817526.

Technical Seminar on Citrus Nursery Plant Production





JORNADA TÉCNICA

LA AMENAZA DEL HUANGLONGBING O GREENING DE LOS CÍTRICOS.

ESTRATEGIAS PARA LA PRODUCCIÓN DE PLANTAS DE VIVERO DE CÍTRICOS (PROYECTO PRE-HLB)

09:25h

PRESENTACIÓN DE LA JORNADA
SR.GUILLEM ALSINA - EXCMO. ALCALDE DE VINARÒS

Modera: VICENTE DALMAU - JEFE DE SERVICIO DE SANIDAD VEGETAL

JUEVES 7 DE ABRIL DE 2022

09:30-10:15h	LA ENFERMEDAD Y SUS VECTORES. RIESGOS EN LA CITRICULTURA DEL MEDITERRÁNEO LEANDRO PEÑA (IBMCP-CSIC)
10:15-10:45h	LA PRODUCCIÓN SEGURA DE PLANTONES CERTIFICADOS ES IMPRESCINDIBLE PARA LA PREVENCIÓN Y CONTROL DEL HLB LUIS NAVARRO (ASESOR CSIC)
10:45-11:30h	PAUSA CAFÉ
11:30-12:00h	AYUDAS PARA INSTALACIONES DE BIOSEGURIDAD PARA LOS MATERIALES VEGETALES DE REPRODUCCIÓN PACO PIÑERO (SERVICIO DE SANIDAD VEGETAL)
12:00-12:45h	PROGRAMA DE MEJORA SANITARIA DE CÍTRICOS: PRIMERA LINEA DE DEFENSA CONTRA EL HLB MARI CARMEN VIVES (INVESTIGADORA IVIA)
12:45-13:30h	NORMATIVA FITOSANITARIA CARLES ESCRIVÀ (SSV-SECCIÓN CERTIFICACIÓN VEGETAL)
13:30-14:00h	MESA REDONDA

PARTICIPAN






LUGAR: Vinalab - Calle Galicia nº 12, 12500 Vinaròs (Castellón)

INSCRIPCIÓN AL EVENTO



Dissemination activities to increase awareness

Simulation exercise, October 2021 (with EPPPO advice and participation)



- **Simulation exercise to test the contingency plan (IVIA):** Valencia, 19 and 20 October 2021.

Exercise with sector experts on the hypothetical introduction of HLB in the Iberian peninsula.

Blog

Link: <https://prehlb-blog.eu/>

Linked with the project website, it has been created with the aim to approach the project and its results to farmers in a more comprehensible way to them.



- Information in different languages: Spanish, French, Italian, Portuguese and English.
- Direct and visual content

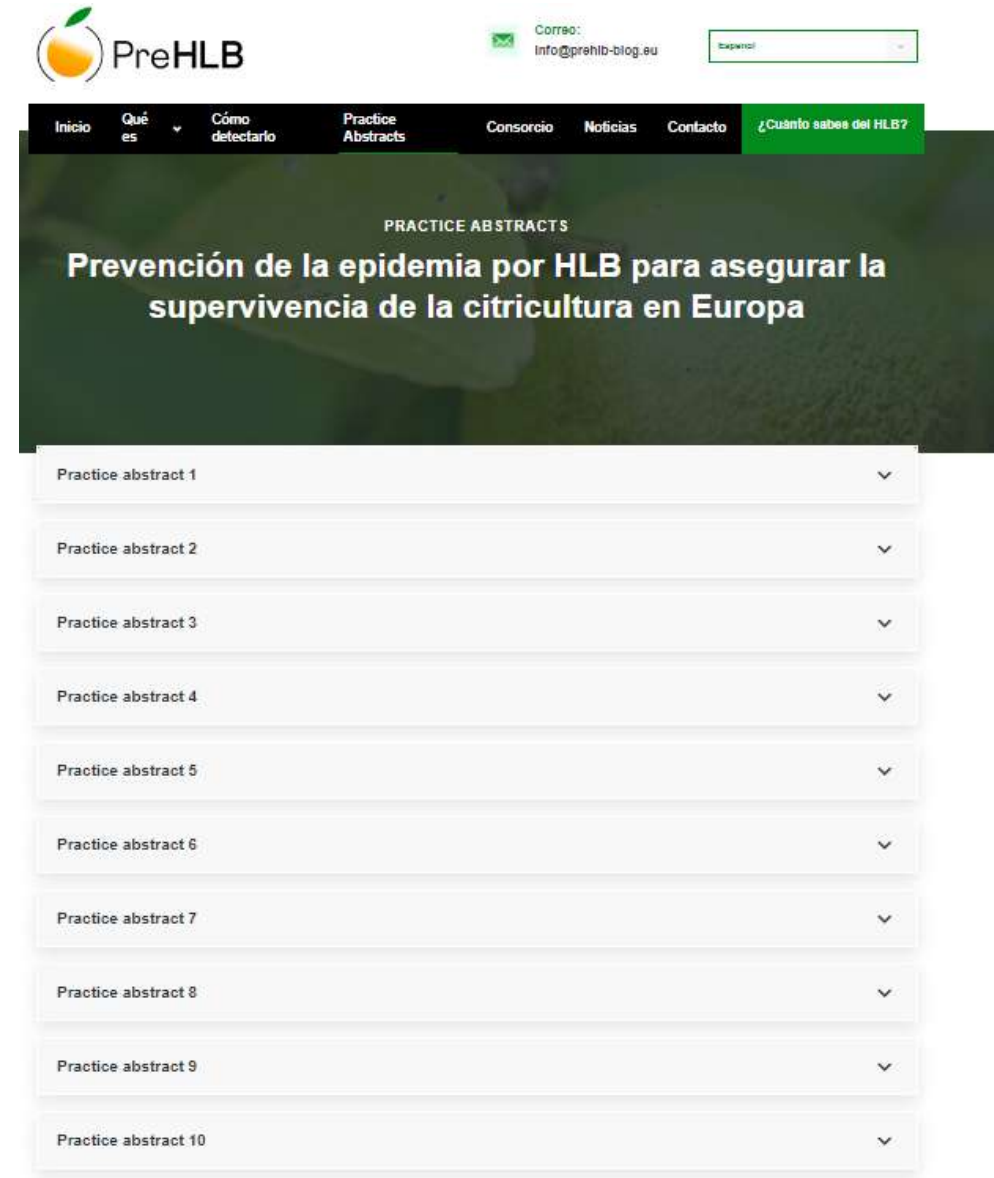


Blog sections:

- Information about the project.
- Practice Abstracts (PAs) created.
- News.
- FAQ.
- Dynamic "test your knowledge" quiz.

PAs are intended to generate awareness about HLB, to train in HLB prevention/management and to share research results in an educational, understandable way.

To date, 70 PAs have been published !!!



Pre-HLB app



An informative mobile application, which offers:

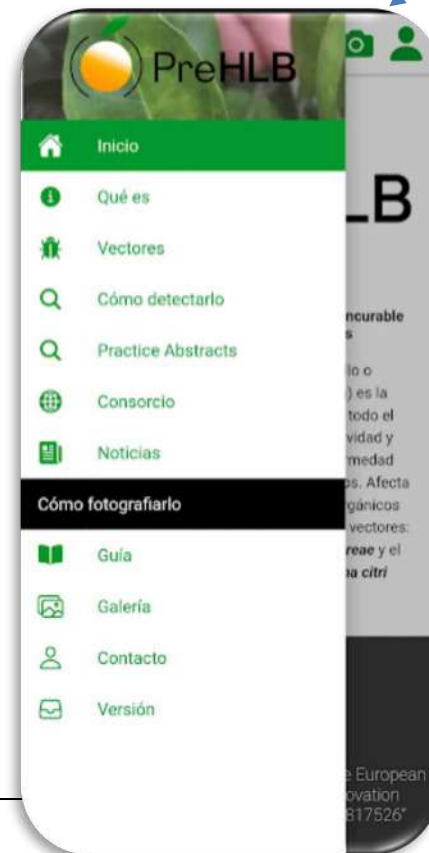
- Digital guide to inform the farmer/stakeholder/public about the disease, transmission, symptoms, vectors and ways of detection.
- Early detection of HLB and vectors from photographs taken by the farmer/stakeholder/public on field/garden/nursery/home.
- Artificial intelligence in constant learning.
- In case of a suspected positive detection, the image is sent for review by a plant health authority.

Available on Android and on IOS.

Home page



Side menu



What is HLB?



Vectors



How to detect it?



THANKS !!!

