Emerging plant health risks: objectives of the Colloquium

Mike Jeger, Chair EFSA PLH Panel
“The Authority shall establish monitoring procedures for systematically searching for, collecting, collating and analysing information and data with a view to the identification of emerging risks in the fields within its mission” (art. 34.1 Reg. (EC) No 178/2002).

“…an emerging risk (ER) to human, animal and/or plant health is understood as a risk resulting from a newly identified hazard to which a significant exposure may occur or from an unexpected new or increased significant exposure and/or susceptibility to a known hazard.” (EFSA Scientific Committee, 2007).
“...an emerging risk (ER) to plant health is understood as a risk resulting from a newly identified pest/harmful organism for which a significant likelihood of introduction and spread may occur or from an unexpected new or increased significant likelihood of introduction and spread and/or susceptibility to a known pest/harmful organism.”
# Emerging plant health risks

<table>
<thead>
<tr>
<th>New plant pest (new species/new strain)</th>
<th>New/modified pathway</th>
<th>Increased/modified crop susceptibility</th>
<th>Listed quarantine pests</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Listed quarantine pests</td>
</tr>
<tr>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Pests recorded in other countries not listed as quarantine</td>
</tr>
<tr>
<td>X</td>
<td></td>
<td>X</td>
<td>Species not recorded as harmful changing behaviour</td>
</tr>
<tr>
<td>X</td>
<td></td>
<td>X</td>
<td>Unknown/new species</td>
</tr>
</tbody>
</table>
Priorities and signals

– EU IAI Quarantine pests & EPPO Alert List
  • changes in “exposure” (probability of introduction and spread), e.g. due to new hosts, modifications of agriculture/forestry practices, spread to new countries, movement on new pathways (high priority)
– EU IAIII quarantine pests (Lower priority)
– Quarantine pests in other country lists (Changes)
– Pests on important EU crops in areas with similar climates, areas with new trends of introduction (e.g. East Asia)
– New pests on derogated pathways/new pathways
– Lag phase studies
– Evolving genera (e.g. Phytophthora)
Data sources

• Commodities
  – FAOSTAT, EUROSTAT, national statistics, trade/customs data, FVO
  – Trends and retrospective analysis
  – Difficult to find new information quickly from this
    • Data too aggregated, EUROSTAT/FAOSTAT too late
    • Need trade/customs information

• Pests
  – EPPO/NAPPO information service
  – CABI information services
  – Scientific and technical literature, growers/trade infos
  – Media screening / Google news /Web searches
  – Interception/outbreak/establishment trend analysis
Needs and challenges

• To rapidly, efficiently and robustly identify/predict emerging plant health risks as early as possible.
• To assess emerging plant health risks, under time and data constraints.
• To communicate timely with risk managers and to provide them with sufficient scientific support to put in place effective risk mitigation strategies.
Scientific Colloquium objectives

Following discussion at EFSA Panel on Plant Health plenary meetings, the EFSA Scientific Colloquium 16 on the identification of emerging plant health risks has been organised:

• to openly debate key scientific issues related to the identification of emerging plant health risks;
• to provide inputs for development of EFSA’s methodological framework for identification of emerging plant health risks.
Colloquium structure

Opening Plenary session

Four discussion groups (DG) with focus on drivers of emerging plant health risks at different scales:

- DG 1 – Changes in pests/vectors/plants and their interactions
- DG 2 – Changes in agriculture/forestry practices
- DG 3 – Changes in trade/food consumption/land use
- DG 4 – Climate change
Discussion groups

DG 1 – Changes in pests/vectors/plants and their interactions as drivers of emerging plant health risks

A virus and its vector, pepper yellow leaf curl virus and Bemisia tabaci, two new invaders of Indonesia

Paul L. de Barro; Ali Rashidirad Hassan; Beilun Wang; Weihua Xie; Shuqian Li

Abstract

A virus and its vector, pepper yellow leaf curl virus and Bemisia tabaci, two new invaders of Indonesia.

An Extensive Field Survey Combined with a Phylogenetic Analysis Reveals Rapid and Widespread Invasion of Two Alien Whiteflies in China

Lina Hu, Fei Pu, Yuan Wang, Guo Qiao, Lianfeng Li, Guang Yang, Shaoyuan Li

ARTICLE

Background: Alien whiteflies are a major threat as vectors for a variety of crop and ornamental plant diseases. Understanding the invasion patterns and genetic diversity for alien whiteflies can help in the development of effective control measures.

Methods/Phylogenetic Analyses: An extensive field survey and published data were used to trace the current density and distribution of alien whiteflies across China. Phylogenetic analyses were conducted using the mitochondrial COI gene and the nuclear 18S rDNA gene for invasive whitefly populations.

Results: The invasive whitefly populations were found to be genetically divergent, with a high genetic diversity of COI and 18S rDNA sequences. The results suggest that the invasion process of whiteflies in China is complex and multi-source.

Discussion: The current understanding of alien whitefly invasion in China is still limited. Further study is needed to understand the invasion patterns and genetic diversity of whiteflies in China.

Conclusions: This study provides new insights into the invasion patterns and genetic diversity of alien whiteflies in China. The results will help in the development of effective control measures.

Editorial

Plant pathology

Sudden larch death

Oliver Bedroom and Julian W. Willett

An aggressive and unpredictable fungal pathogen is devastating larch plantations in Britain. Its remarkable broad host range and the possibility of further zonal spread, elevated temperature for concern.

For more than a decade, a strain of mockup poplar disease has been transmitted in Europe and north America. Among the most dangerous and undetected Soil, in Phoebe rubra, has been in common use. For some years, this symptom of fungus has caused "sudden death" in the larches, resulting in deaths of entire forests. In Europe, it now shows itself in its fifth year of serious threat in Japanese larch, and could emerge as the same in Europe.

Hungarian invasions of true oaks are not uncommon in the region of northern Europe, and have been spreading in recent years. The disease is now spreading rapidly in the region, with the potential to cause significant damage.
Discussion groups

DG 2 – Changes in agriculture and forestry practices as drivers of emerging plant health risks
Discussion groups

DG 3 – Changes in trade, food consumption or land use as drivers of emerging plant health risks

Managing Invasive Populations of Asian Longhorned Beetle and Citrus Longhorned Beetle: A Worldwide Perspective

Robert A. Hoft, Daniel M. Hendrix, Jinghong Sun, and Jerry J. Tergesen

Invasive species of the genus Anoplophora are a threat to forests, urban areas, and agricultural habitats in North America and other regions of the world. These pest species can cause significant economic and environmental damage. This paper discusses the current knowledge on the biology, ecology, and management of Anoplophora species, and highlights the need for further research and international collaboration to address this emerging threat.

Keywords: Anoplophora, invasive species, pest management, forest health

Submitted Article

The Impact of Preferential Trade Arrangements on EU Imports from Developing Countries: The Case of Fresh Cut Flowers

Andrew Muhammad, William A. Immun, and Jennifer H. Whelan

The EU is the largest market for fresh cut flowers, with substantial imports from developing countries. This study examines the impact of preferential trade arrangements on EU imports from selected developing countries, focusing on Colombia and Ecuador, which are significant suppliers of fresh cut flowers to the EU market. The findings highlight the role of trade agreements in enabling and enhancing trade, but also identify challenges and opportunities for improving the sustainability and resilience of the fresh cut flower sector.

Keywords: fresh cut flowers, preferential trade arrangements, developing countries, bilateral trade agreements

Role of wild Prunus species in the epidemiology of European stone fruit yellows

L. Combar, F. Fuchs, P. Emseraus, and N. Loid

Stone fruit yellows is a disease affecting stone fruits (e.g., peaches, plums) worldwide, caused by a fungal pathogen. The role of wild Prunus species in the epidemiology of this disease is discussed, focusing on their potential as reservoirs or sources of inoculum. The study highlights the importance of understanding the epidemiology of stone fruit yellows to develop effective management strategies.

The spread of the western flower thrips Frankliniella occidentalis (Pergande)

William S. J. Kirk and L. J. Senior

Western flower thrips (WFT) is an important pest of ornamental and vegetable crops, particularly in the western United States and Canada. This paper reviews the spread of WFT, reporting on new records and discussing the implications for control strategies. The importance of early detection and integrated pest management practices is emphasized to mitigate the impact of WFT on agricultural and ornamental crops.

Structural change in the international horticultural industry: Some implications for plant health

Catherine H. Demarco, Annette A. Naden, Alice M. Jersey, and Michael J. Homan

The horticultural industry is undergoing significant structural changes, driven by factors such as climate change, market demands, and technological advancements. This paper explores the implications of these changes for plant health, highlighting the need for resilient and adaptable pest management strategies to ensure the sustainability of the industry.

Tuta absoluta, Tomat leaf miner moth or South American tomato moth

Ministry of Agriculture, Forestry and Food Quality

Tuta absoluta is an important pest of tomato crops, causing significant economic losses worldwide. This paper provides an overview of the biology, ecology, and control strategies for Tuta absoluta, emphasizing the need for integrated pest management approaches to manage this important pest efficiently.
Discussion groups

DG 4 – Climate change as driver of emerging plant health risks

Abstract: The continuing increase in atmospheric carbon dioxide concentrations resulting from fossil fuel combustion and deforestation may change the ecological impact and geographical distribution of plant health hazards (e.g. heat stress and Japanese knotweed (Fallopia japonica Thunb.)) in the USA. Both effects were investigated about a century ago (from 1920) and have become naturalized weeds. Recent range expansion is currently limited by drought during periods of summer and winter. This expansion is limited by low temperature sensitivity of overwintering seeds.

The range of host and pathogen phenology understanding the disease triangle with climate change

We have observed a remarkable increase in precipitation and enhanced evapotranspiration on a continental scale in the U.S.A. Many plants and pathogens have grown in a more drought-resistant environment, resulting in increased survival and spread. This has been attributed to changes in climate variables such as temperature and precipitation patterns, which can affect disease spread and establishment. Increased moisture levels and altered temperature regimes can favor the spread of certain diseases. For example, fungal pathogens that were previously limited by cold conditions may now have expanded their ranges into new areas. Similarly, plant diseases that require specific conditions for development may have become more widespread due to changes in climate patterns. Understanding the interplay between climate change and disease dynamics is crucial for effective disease management and mitigation strategies. It highlights the need for continued research to monitor and predict disease trends in a rapidly changing climate.
Each discussion group will address the following issues:

- How do we recognise these changes?
- How can we anticipate these changes? Is prediction possible?
- What are the implications of these changes for managing risk?
- Can we learn from the past? Are there any case studies for retrospective analysis?
The outcome of the four DGs will be presented and discussed in a **final plenary session**:  

- To discuss in the plenary session the results of each discussion group  
- To integrate the four different scales of the discussions and to formulate conclusions and, as appropriate, recommendations.
Thank you for your attention