CLIMATE CHANGE INCREASES THE IMPACTS OF PESTS

WHY IS INTERNATIONAL COOPERATION CRUCIAL?

Craig Fedchock

International Plant Protection Convention Secretariat

1. Why does Plant Health matter?

2. How does climate change increase the impact of pests?

3. Why is International Cooperation through the IPPC crucial?

1. Why does Plant Health matter?

The Impact of Plant Pests

- Each year an estimated **10–16% of global harvest** is lost to plant pests.
- The estimated cost of these losses is *at least* **US$220 billion**.
- Pests, pathogens and weeds cause the loss of **more than 40 percent** of the world's food supply.
- **More** plant health pests are appearing earlier and in places where they were never seen before.

Plant Health in the news!


LA GAZZETTA DEL MEZZOGIORNO.it

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ORIA (BRINDISI) – "Mi hanno svegliato alle 6 del mattino, sono
abbattendo 8 dei miei ulivi, sono arrabbiato, non ci sono analisi
bloccheranno il contagio". Lo racconta Franco Curci, agronomo
un uliveto nella zona dove si sta concentrando da questa mattina
di 45 ulivi nell'ambito del piano per far fronte alla Xylella fastidios
"Volevo le analisi – prosegue Curci – ma non me le hanno most
analisi, ci sono anche alberi di ulivi secolari, non sono piante di
comprare al vivaio e le ripianti, qui si parla della condanna a mo
ulivi".

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ÉDITION ABONNÉS

Une bactérie menace les oliveraies italiennes

LE MONDE | 23.03.2015 à 10h25 • Mis à jour le 23.03.2015 à 16h56 |

Par **Philippe Ridet** (Rome, correspondant)

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Symptoms of quick decline (complesso del disseccamento rapido dell'olivo) observed in Puglia (IT) on olive trees.
© D Boscia, F Nigro, A Guario.

The outbreak of the bacteria *Xyllela fastidiosa* in southern Italy greatly threatens olive production, olive trees survival in the Mediterranean area, and impacts trade of plants and plant products from southern Italy.

Pests impact food security, the environment, livelihoods and trade

The Emerald ash borer (*Agrilus planipennis*) was first detected in the US in 2002. Since then, it laid waste to more than 100 million ash trees.

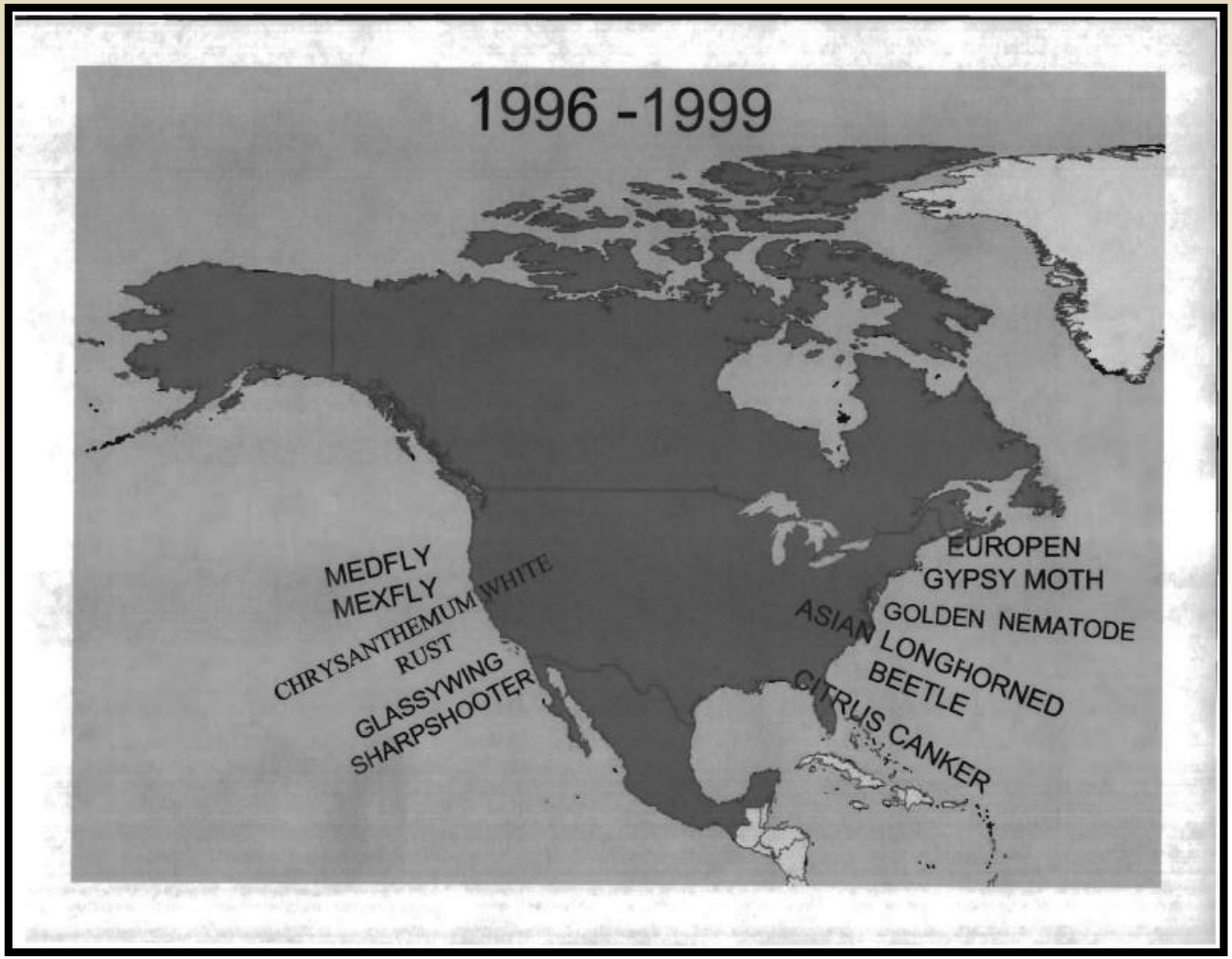
According to biological and medical research in the US, the destruction of trees by this pest also affected human health, as asthma, stress and cholesterol levels and mortality rates have significantly increased in affected areas since its appearance.

Pests impact food security, livelihoods, the environment and trade

Water hyacinth (*Eichhornia crassipes*) is one of the most invasive alien aquatic plant pests in the world.

It is invading Madagascar. Previously, this area included rice fields.

Pests of concern for 1996-1999 in N. America



Pests of concern in 2009 in N. America

What are the reasons for this increase in pests?

Port facility in Agadir, Morocco, where hundreds of tons of commodities are imported

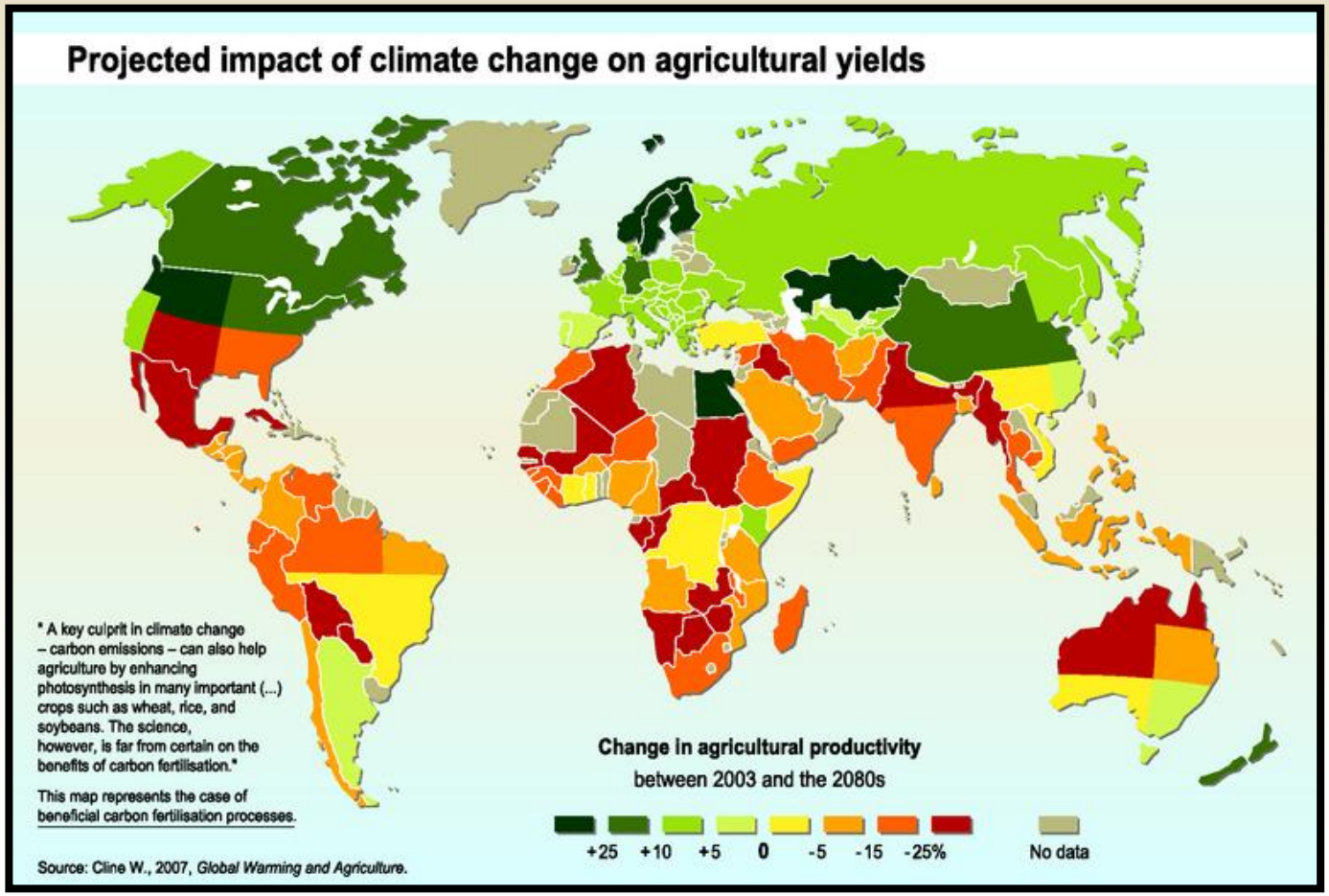
The increase in the movement of plants and plant products commodities and of people

Plant Health inspections activities at the Sea Port of Valparaiso, Chile.

Wood imported in Agadir, Morocco

What are the reasons for this increase in pests?

Climate change



2. How does climate change increase the impact of pests?

Climate Change and pests

- There is clear evidence that climate change is altering the distribution of animal and plant pests and diseases, but the full effects are difficult to predict and need to be assessed on a case by case basis. Climate change allows species to appear earlier in the season and to have greater impacts.
- Climate change also allows the establishment of pests in areas where they could so far not establish.
- Climate change also threatens the survival of insects critical to sustaining plants themselves.

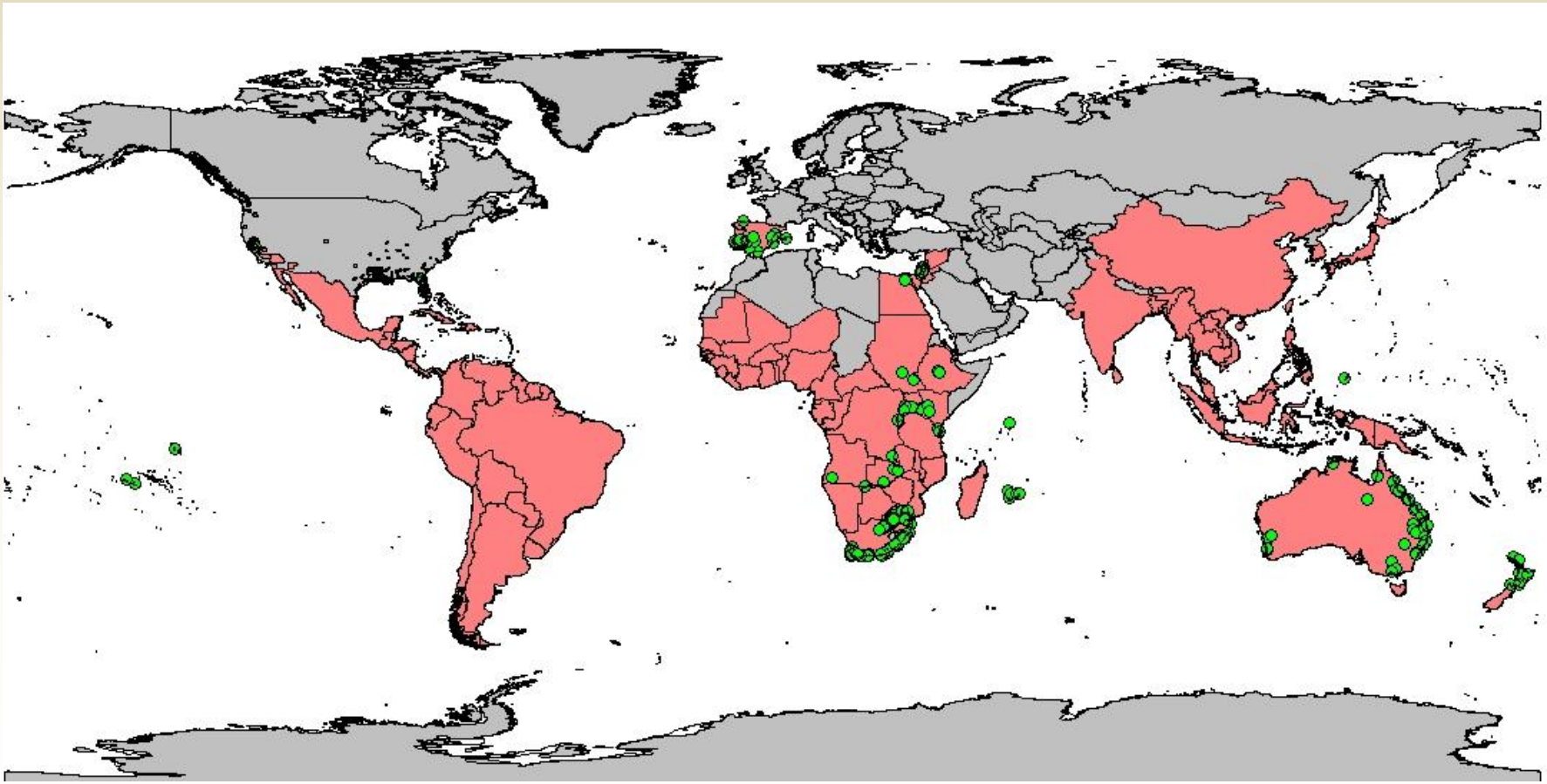
Pests can establish earlier and have greater impacts

Potato leafhopper (*Empoasca fabae*) on a leaf

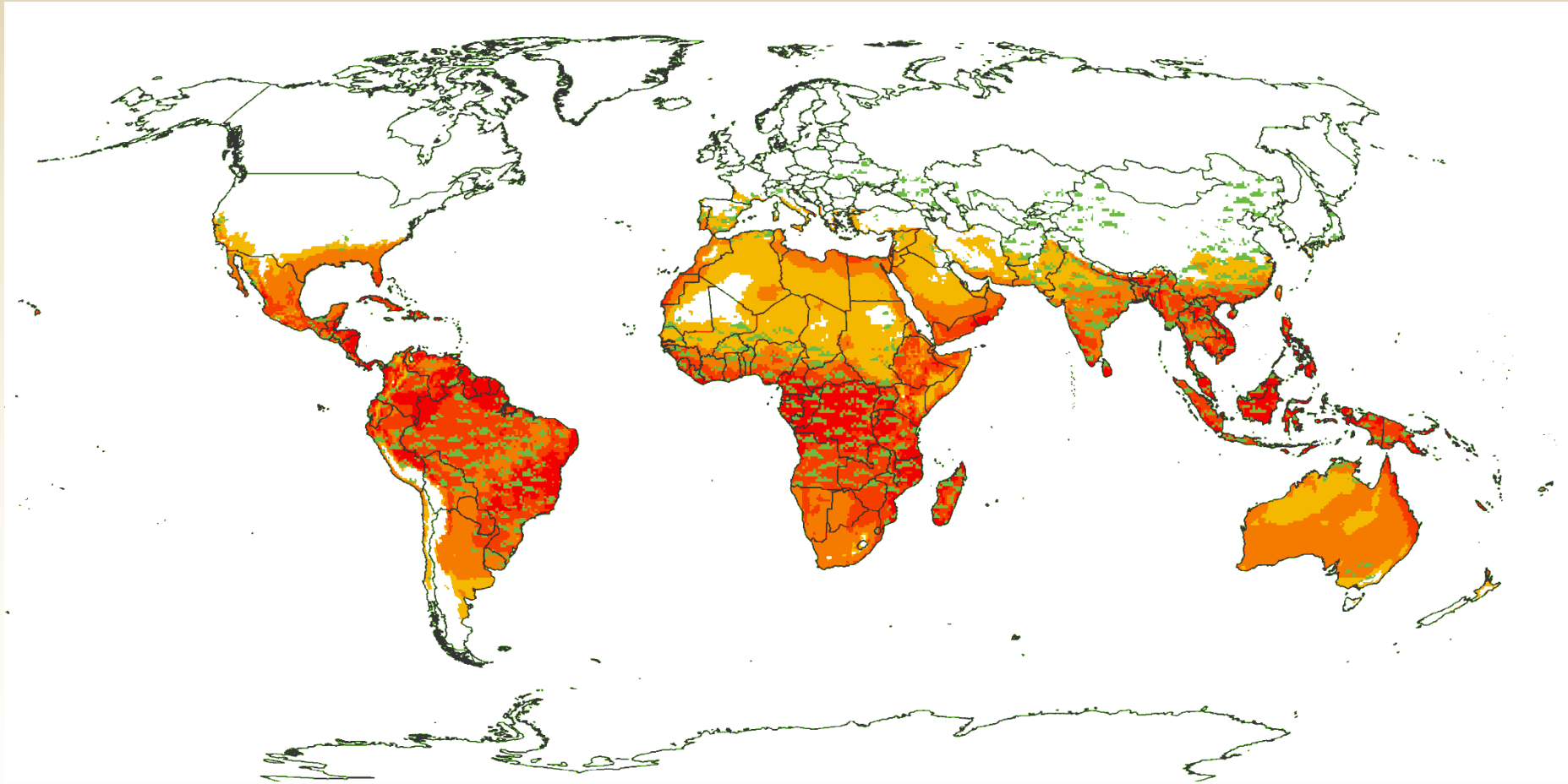
The potato leafhopper (*Empoasca fabae*) appears on average 10 days earlier than in the early 1950s, and their infestations are more severe in the warmest years.

With over 200 plant species as potential hosts, its earlier arrival each year causes millions of dollars each year.

Known distribution of *Eichhornia crassipes*



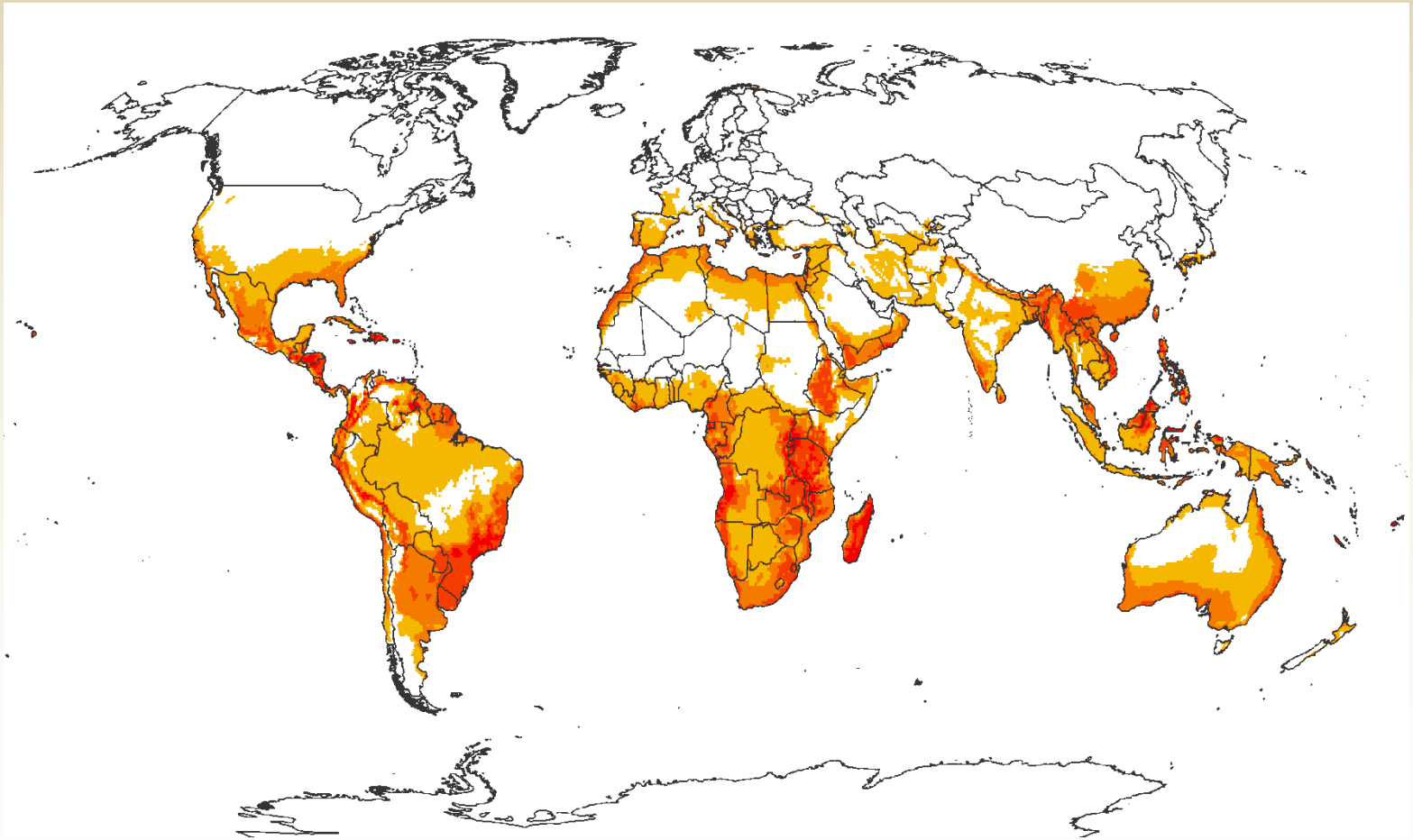
Pests can extend their range with climate change



Eichhornia crassipes and rice production

Source: Kriticos & Brunel, Data in publication.

Pests can extend their range with climate change



A1B CSIRO Mark 3.0 by 2080 for the world

Source: Kriticos & Brunel, Data in publication.

Additional threats to plants from Climate Change

- a reduction of crops' tolerance and resistance to pests and disease
- the loss of some wild relatives of crops that could be used to introduce desired traits in classical and modern crop resistance breeding programs
- a decrease in soil fertility and an increase in soil erosion that reduces the natural capacity of soils to control soil-borne pests and diseases

2015 International Year of Soils

Additional threats to plants from Climate Change

- a **reduction of pollinators**

Bee populations are declining.

- a **reduction of beneficial organisms** for pest and disease control

- a reduction in the **effectiveness of safe pesticides and herbicides**

World Perspective

Each year an estimated 10–16% of global harvest is lost to plant pests ($220 billion per year).

Population in the world is currently growing at a rate of around 1.14% per year.

Emergency situations will be increasingly faced.

Villagers return to their homes after a flood in Bihar, India (Photo via Flickr, by balazsgardi)

Global food production must increase by 50% to meet the projected demand of the world's population by 2050.

Sudan famine © Radhika Chalasani

Devastations from plant diseases can be far reaching and alter the course of society and political history.

3. Why is International Cooperation through the IPPC crucial?

What is the IPPC?

- The International Plant Protection Convention (IPPC) is an international plant health agreement that aims to protect cultivated and wild plants by preventing the introduction and spread of pests. It has now 182 contracting parties.

- The IPPC is recognized by the World Trade Organization's (WTO) Agreement on the Application of Sanitary and Phytosanitary Measures (the SPS Agreement) as the international standard setting body for plant health.

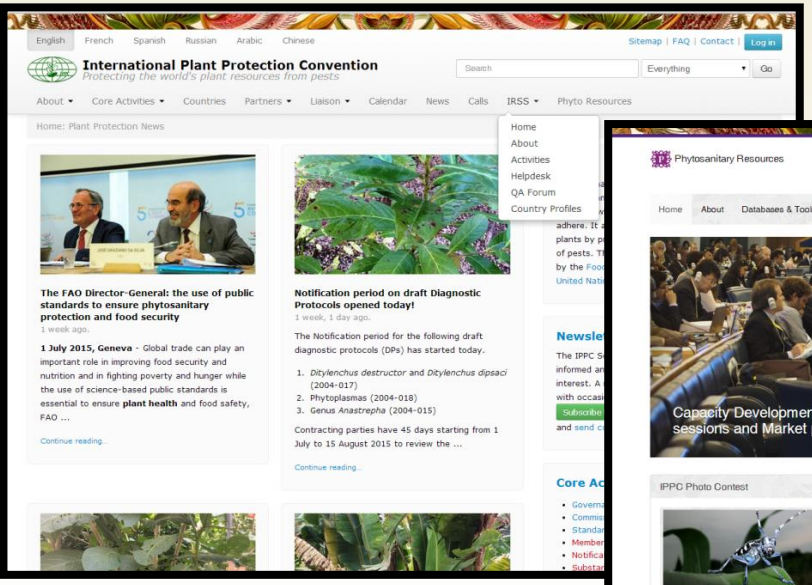
- The IPPC is based in Rome (Italy) at the Food and Agriculture Organization (FAO) and has around 20 staff.

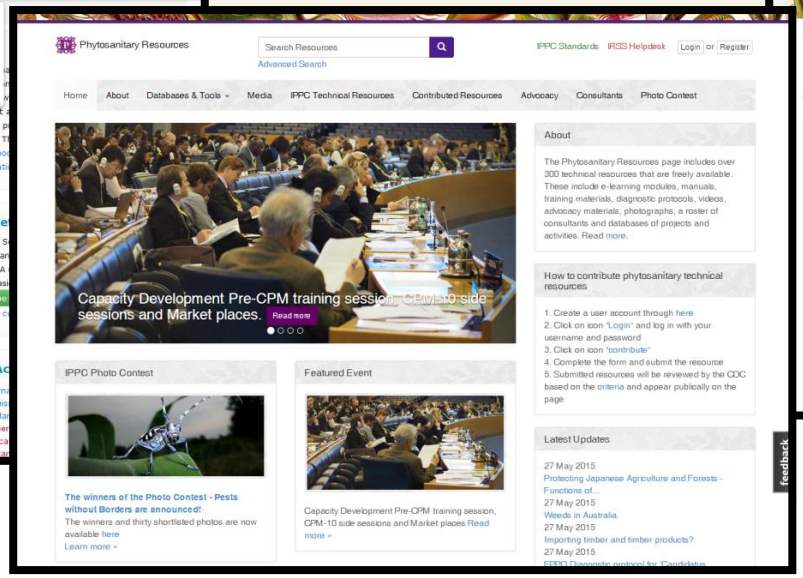
What are the IPPC objectives?

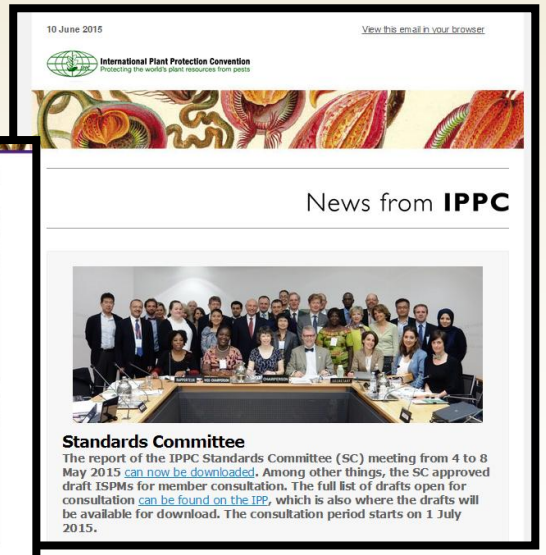
- protect sustainable agriculture and enhance global food security through the prevention of pest spread
- protect the environment, forests and biodiversity from plant pests
- facilitate economic and trade development through the promotion of harmonized scientifically based phytosanitary measures
- develop phytosanitary capacity for members to accomplish the preceding three objectives

What does the IPPC do?

The IPPC develops and facilitates the implementation of international standards to ensure food security and reducing the risks to agriculture and biodiversity.







Register to the IPPC Newsletter

www.ippc.int

http://www.phytosanitary.info/

International Plant Protection Convention
Protecting the world's plant resources from pests

IPPC and Climate change

The IPPC is actively trying to make a difference for issues related to climate change, through:

- **improved exchange of information among contracting parties**
- **capacity development assistance to developing countries**
- **increased and harmonized surveillance activities**
- **widened circle of cooperation in mitigating the effects of climate change through the Biodiversity Liaison Group.**

At the initiative of Finland, the IPPC's governing body, the CPM this year supported the launch of an effort to establish 2020 as the International Year of Plant Health.

Visit www.ippc.int

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ultivar 'Resista'.

Pests without Borders Photo Contest

An initiative of the IPPC Capacity Development Committee, with financial support from the STDF (Project 350)

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