



Scottish Government  
Riaghaltas na h-Alba  
gov.scot



Plant  
Health  
Centre

Scotland's Centre of Expertise

## Scotland's Plant Health Centre

Funded by the Scottish Government

Ian Toth, Denise A'Hara, Fiona Burnett  
Pete Hollingsworth, Sonia Humphris  
Chris Quine and Gerry Saddler





Controlling  
the climate

Providing  
food

Supporting  
biodiversity

Making  
things

Social  
wellbeing

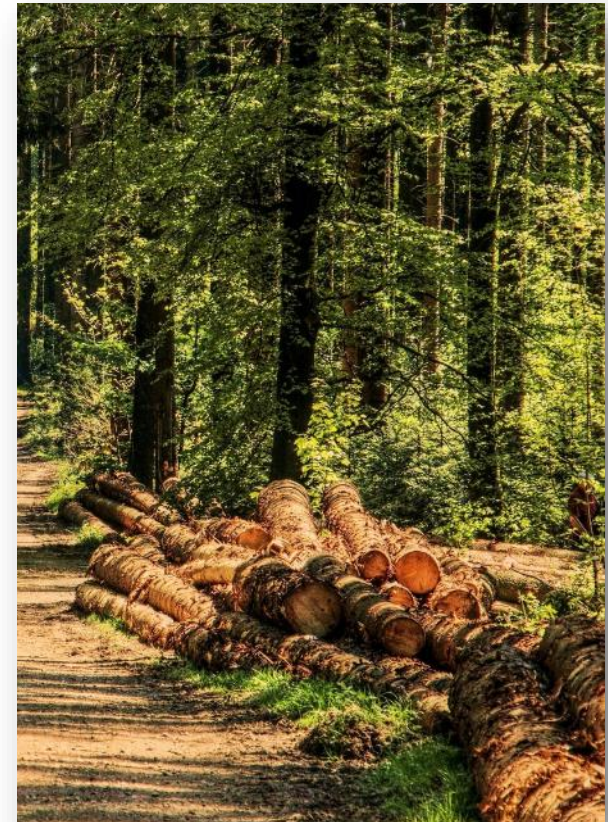


# Plants in Scotland?



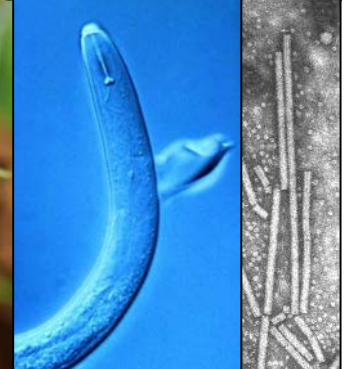
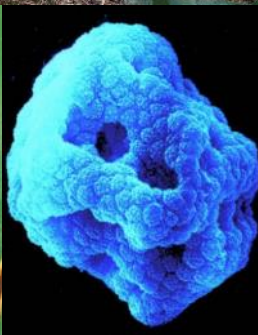
Plant health is at the heart of Scotland's rural economy and natural environment

- Rural economy **£2 b**
- Food and drink sector **£14 b**
- Food and drink exports **£5 b**
- Environmental benefits **£21 b**





# Pests and diseases are already here



# Increasing Plant Health risks

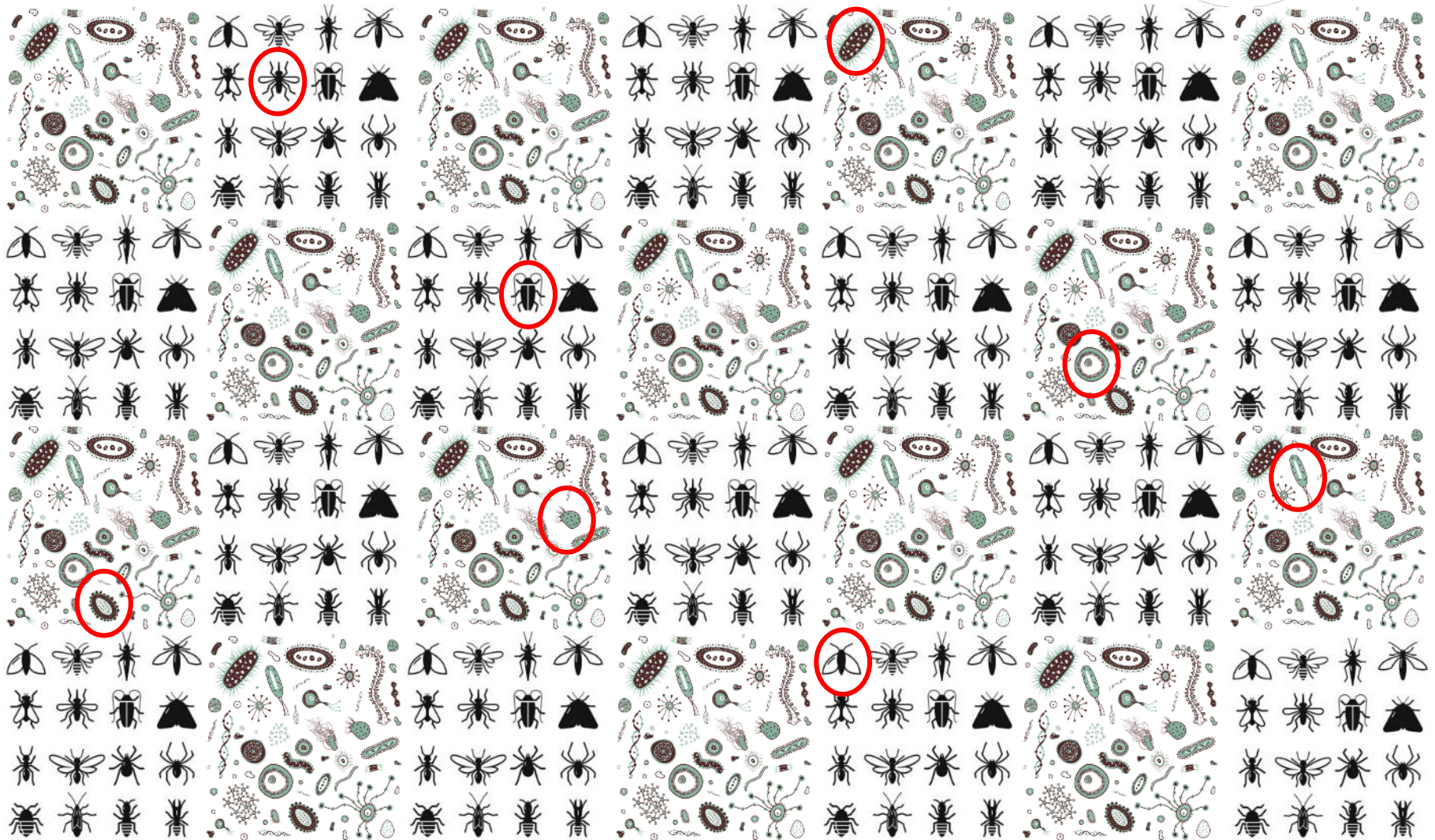
- Increased global trade
- Pressures of climate change





# UK Plant Health Risk Register

>1000 pests and pathogens threatening the UK



# The Scottish climate



Scottish Government  
Riaghaltas na h-Alba  
gov.scot

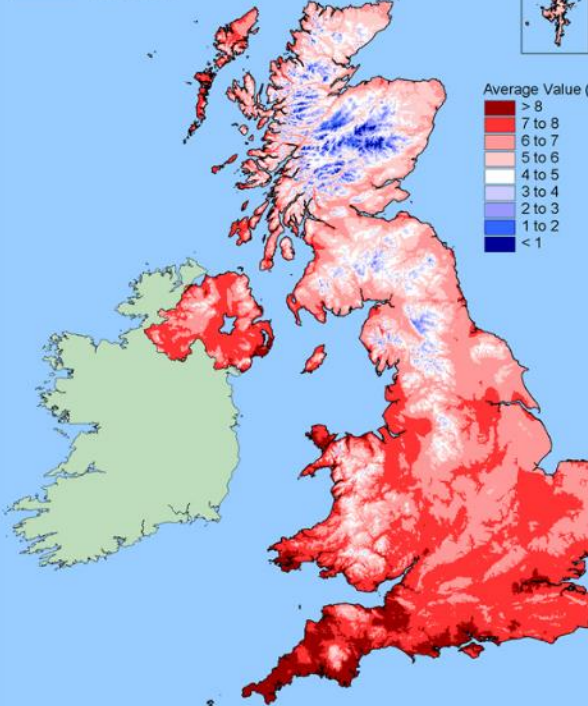
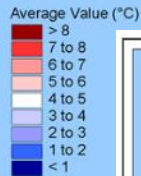


Plant  
Health  
Centre

Scotland's Centre of Expertise



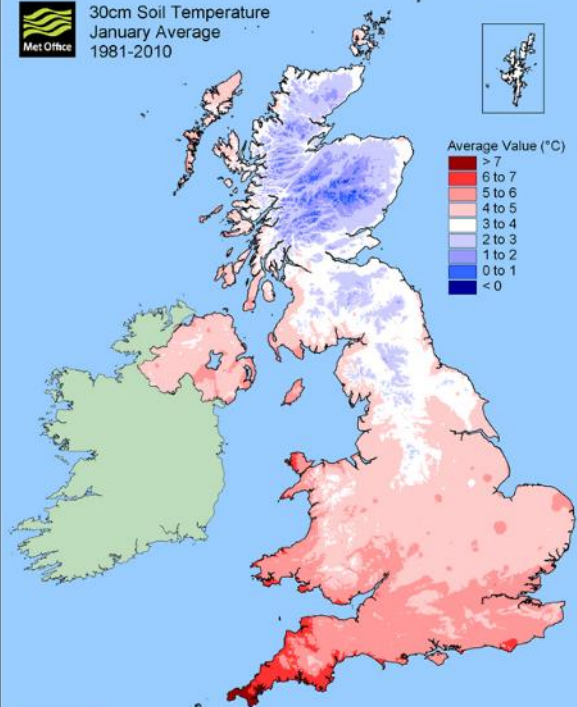
Mean Maximum Temperature  
January Average  
1981-2010



© Crown copyright



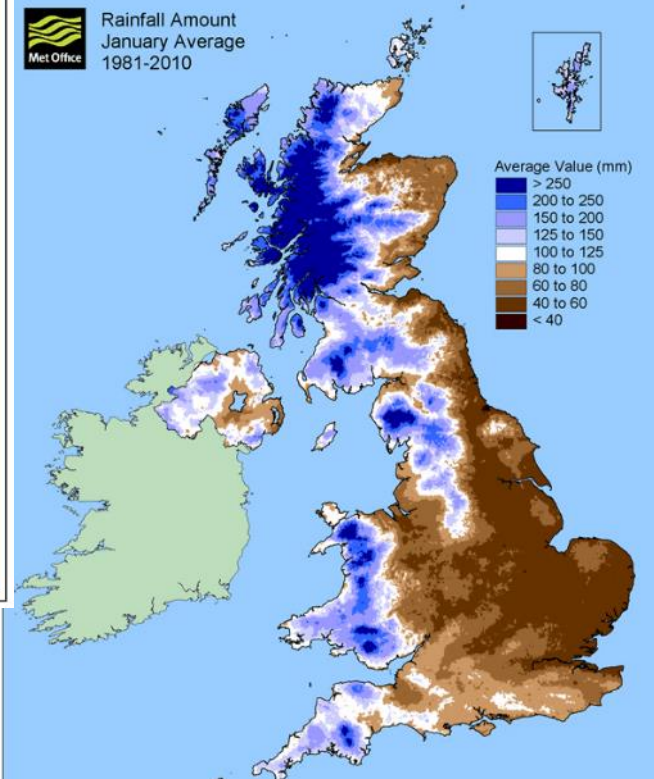
30cm Soil Temperature  
January Average  
1981-2010



© Crown copyright



Rainfall Amount  
January Average  
1981-2010



© Crown copyright



# Scottish plants













# The cost of Ash Dieback



**2012**

**£15b**





# Emerald Ash Borer

- Killed >100m ash trees in USA
- Travelling west from Russian at 30 km / year
- Risk through wood packaging and timber trade





# *Xylella fastidiosa*

- Killed >1m olive trees in Italy
- > 500 potential plant hosts
- Risk through horticultural trade





# A Centre of Plant Health knowledge in Scotland



CPHOS



Scot Gov

Scot Gov  
funded  
research

Industry  
Public bodies  
Landowners  
Public

Wider  
research  
community





# Plant Health Centre



## Plant Health Centre Directorate



## Science Advisory and Response Team (SART)





# Plant Health Sectors



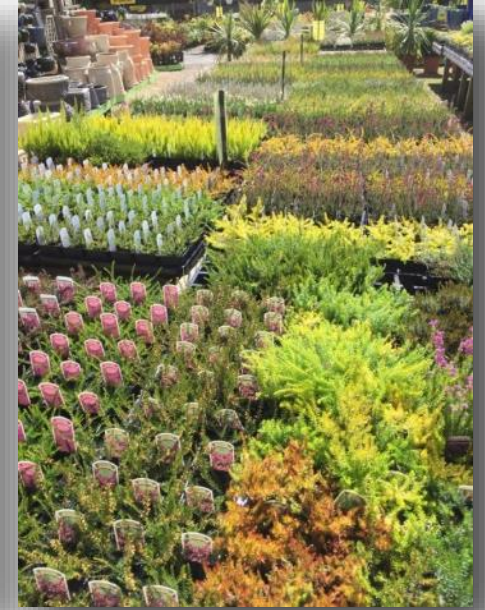
Forestry



Agriculture



Environment



& Horticulture



Chris Quine  
Forest Research



Fiona Burnett  
SRUC



Pete Hollingsworth  
RBGE



# What does the Plant Health Centre do?



Single access point for advice and knowledge

Focus on Scotland's plant health needs

Integrates plant health across sectors

Complement not duplicate work of other Scottish and non-Scottish orgs



# What does the Plant Health Centre do?

Horizon scanning

Prioritise pests for  
Scotland

Improve access to  
data

Bring together  
knowledge  
networks

Short term  
evidence

Commission  
research to fill  
evidence gaps

Strengthen  
surveillance and  
emergency  
responses

Engagement with  
stakeholders





# Regular government and stakeholder meetings



- One to One
- Events
- Centre-specific events



Forestry



Agriculture



Environment



Horticulture



# PHC Launch Event

- Royal Botanic Garden Edinburgh
- 60 participants
- Workshops on plant health needs
- Outputs to commissioning





# Other Events and Meetings



Royal Highland Show



# Commissioned projects



Specific threats



Spread, survival and control



Supporting Scotland's  
aims and challenges



Enabling, networking,  
cross sector working



# Commissioned projects



| Project                   | Environment | Forestry | Horticulture | Agriculture |
|---------------------------|-------------|----------|--------------|-------------|
| Web resource              | Yes         |          |              |             |
| <i>P. ramorum</i>         | Yes         | Yes      | Yes          |             |
| Bark beetles              | Yes         | Yes      | Yes          |             |
| Biodiversity strategy     | Yes         | Yes      | Yes          | Yes         |
| <i>Xylella fastidiosa</i> | Yes         | Yes      | Yes          | Yes         |
| <i>Xylella fastidiosa</i> | Yes         | Yes      | Yes          | Yes         |
| <i>Xylella fastidiosa</i> | Yes         | Yes      | Yes          | Yes         |
| Network analysis          | Yes         | Yes      | Yes          | Yes         |
| Mobile technology         | Yes         | Yes      | Yes          | Yes         |
| Climate change            | Yes         | Yes      | Yes          | Yes         |
| Pesticide withdrawals     |             | Yes      | Yes          | Yes         |
| Sharing solutions         |             | Yes      | Yes          | Yes         |
| Metaldehyde               |             | Yes      | Yes          | Yes         |
| PCN                       |             |          | Yes          | Yes         |
| Zebra chip                |             |          | Yes          | Yes         |



# Zebra chip

- *Candidatus Liberibacter solanacearum*
- Vectored by Psyllids
- Big losses
  - USA - New Zealand (Potato) Zebra chip
  - Finland (Carrot)





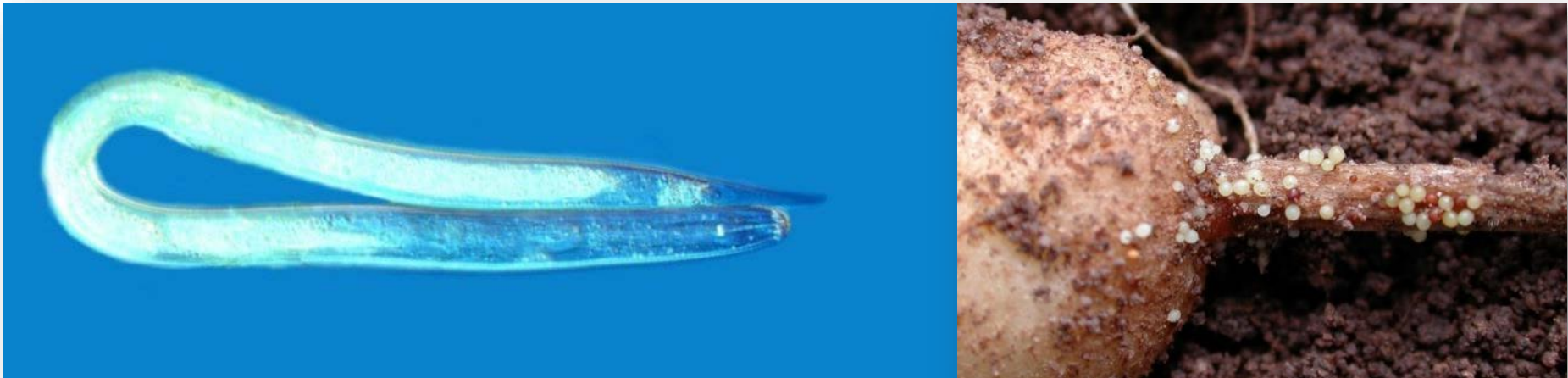
# Potato Cyst Nematode

## ■ *Globodera rostochiensis*

- Present for decades
- Good cultivar resistance
- Population steady

## ■ *Globodera pallida*

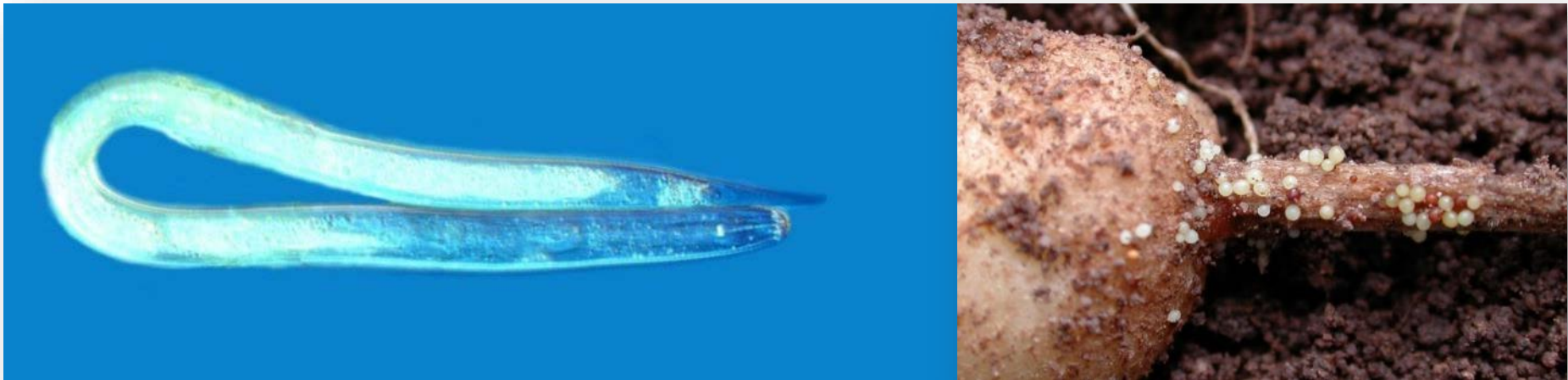
- Present for a decade
- Poor cultivar resistance
- Doubling every 6-7 years





# Potato Cyst Nematode

- PCN management in other countries
- Model future risks: interventions and climate
- Grower behaviours and attitudes
- Economic analysis of impact in Scotland



# Evidence Summary Reports

- Status
- Scottish-specific issues
- Knowledge gaps
- PHC perspective
- Key priorities and recommendations

Plant Health Centre  
Scottish Government  
Riaghaltas na h-Alba  
gov.scot

## Potato Cyst Nematode (PCN) species - *Globodera pallida*.

**Status** (include where present, recent European outbreaks (if applicable) and key known research activities).

- There are two species of potato cyst nematode (PCN): *Globodera rostochiensis* and *G. pallida*.
- Both species are present in Scotland.
- Potato varieties resistant to *G. rostochiensis* (50% of potatoes in Scotland) have largely halted its spread with soil infestations remaining constant. Resistance seems to be stable over last 10 years.
- There is little resistance to *G. pallida* and those that are available are found in processing varieties which are not commonly grown (certainly for ware) in Scotland.
- Seed land is tested by the government for PCN before planting is allowed.
- There are 14,000 Ha of land that can't be used to grow seed.
- Ware crops do not require to be tested and this has partly led to an increase in ware production. However, ware, especially susceptible varieties, can spread PCN and prevent that land being used in future for seed.
- **The land infected with *G. pallida* is doubling every 6-7 years.**

Figure. a) Potato Cyst Nematode *Globodera pallida* - Credit: Christopher Halger, Swiss Federal Research Station for Agroecology and Agriculture, [Buwood.org](http://Buwood.org); b) *G. rostochiensis* PCN cysts (golden) - Credit: Bayer Crop Science UK; *G. pallida* PCN cysts (white) - Credit: [Central Science Laboratory](http://Central Science Laboratory), [Hagenden](http://Hagenden), [British Crown](http://British Crown), [Buwood.org](http://Buwood.org).

**Scottish-specific issues** (include industries at risk; likelihood of arrival; possible scale of economic/environmental/social impact of arrival)

- Scotland is particularly at risk as 80% of the UK's seed industry is here.
- Without action the Scottish seed potato industry could be severely restricted over the next 25-30 years, with a possibility of no viable industry at the end of this period.
- This will clearly have economic consequences for the sale of seed to the wider UK and for the 20% of seed that is currently exported.

C/o James Hutton Institute, Invergowrie, Dundee DD2 5DA  
Plant Health Centre  
Phone: +44 (0)1382 568 905  
Email: [info@planthealthcentre.scot](mailto:info@planthealthcentre.scot) Web: [www.planthealthcentre.scot](http://www.planthealthcentre.scot)





Scottish Government  
Riaghaltas na h-Alba  
gov.scot



Plant  
Health  
Centre

Scotland's Centre of Expertise

CONTACT US

December 2018  
Issue 3

# PHC News

## STRENGTHENING SCOTLAND'S CONTINGENCY PLANS FOR *XYLELLA FASTIDIOSA*

Contingency plans are an important part of Scotland's planning against possible incursions of harmful plant pests and pathogens. While the UK contingency plan for *Xylella fastidiosa* offers many of the requirements for this threat, the Plant Health Centre is working with the Chief Plant Health Officer for Scotland and other stakeholders to strengthen the plan specifically for Scotland. As a result, three projects have been commissioned by the Centre, building on work being conducted across Europe, as outlined below:

- Risk mapping of the likelihood and impact of *Xylella fastidiosa* outbreaks in Scotland.
- Using modelling to investigate the effectiveness of national surveillance monitoring aimed at detecting a *Xylella fastidiosa* outbreak in Scotland.
- Identifying the presence of potential insect vectors of *Xylella fastidiosa* in Scotland.

For more information visit: <https://www.planthealthcentre.scot/projects>

Image below: Spittlebug vector for *Xylella fastidiosa*. Credit – <https://www.flickr.com>



### INSIDE THIS ISSUE

|  |   |
|--|---|
| Strengthening Scotland's contingency plans for <i>Xylella fastidiosa</i> | 1 |
| Welcome message from Scottish Government                                 | 1 |
| House of Lords: Plant Health post Brexit                                 | 2 |
| Chief Scientist for Chris Quine  | 2 |
| Barley pest and disease risks  | 3 |
| International year of Plant Health 2020                                  | 4 |

### SPECIAL POINTS OF INTEREST

- Boost to the Centre
- Watching brief: Guatemalan potato moth
- Stories to share?
- Website and Twitter
- Contact us



Scottish Government  
Riaghaltas na h-Alba  
gov.scot

# Newsletters



# Web site



- [About Us](#)
- [Resources](#)
- [Sectors](#)
- [Projects](#)
- [Events](#)
- [News](#)

[Contact Us](#)

[www.planthealthcentre.scot](http://www.planthealthcentre.scot)



## Plant Health Centre

Improving Scotland's resilience in the face of threats to the UK arable crops, trees, horticulture and wild plants.

[READ MORE](#)





# Twitter



Tweets **134** Following **523** Followers **529** Likes **119**

Follow

**Scotland's Plant Health Centre**  
@PlantHealthScot  
Bringing forestry, horticulture, environment and agriculture together to co-ordinate plant health knowledge, skills, needs and activities across Scotland

Scotland, United Kingdom  
planhealthcentre.scot  
Joined February 2018



Tweets Tweets & replies Media

Scotland's Plant Health Centre Retweeted  
**Adam Kleczkowski** @aklecz · May 21  
Visiting Białowieża forest to see damage to bark beetle #planthealth @PlantHealthScot. The forest still is fantastic, but huge Ips damage



1 retweet 1 like

**New to Twitter?**  
Sign up now to get your own personalised timeline!  
[Sign up](#)

**Worldwide trends**  
#Ridge 1,885 Tweets  
#AEWDoN 239K Tweets  
#SundayMorning 6,634 Tweets  
#SundayThoughts 15.2K Tweets  
#SundayMotivation 8,702 Tweets  
**Kawhi**  
Raptors punch a ticket to the NBA Finals for the first time ever  
**Raptors**  
Raptors punch a ticket to the NBA Finals for the first time ever



# INTERNATIONAL YEAR OF PLANT HEALTH

2020



Scottish Government  
Riaghaltas na h-Alba  
gov.scot



Plant  
Health  
Centre

Scotland's Centre of Expertise



Plant  
Health  
Centre

Scotland's Centre of Expertise



Scottish Government  
Riaghaltas na h-Alba  
gov.scot





# INTERNATIONAL YEAR OF **PLANT HEALTH**

2020



## **International Congress on Plant Pathogenic Bacteria (ICPPB)**

“The Impact of Plant Pathogenic Bacteria on Global Plant Health”

7<sup>th</sup> – 12<sup>th</sup> June 2020

Nicola Sante Iacobellis and Roberto Buonauro

## **International *Erwinia* Meeting (IEW)**

5<sup>th</sup>-6<sup>th</sup> June 2020

Invitation and abstract submission

Assisi, ITALY



# Contact Us

Twitter: @PlantHealthScot

URL: [www.planthealthcentre.scot](http://www.planthealthcentre.scot)

Email: [info@planthealthcentre.scot](mailto:info@planthealthcentre.scot)

Sign up to receive our newsletter and further information

