

Phytophthora ramorum and
Phytophthora kernoviae

Emerging plant pathogens in cultivated and
wild environments



History

1993 *Phytophthora* found on ornamentals in Germany and the Netherlands

1995 'Sudden Oak Death' found in the USA

2001 *Phytophthora ramorum* formally described

2001 PHSI survey did not detect the the disease

2002 Detected on viburnum in England

2003 *Phytophthora kernoviae* found in Cornwall



Current status

- *P. ramorum* present in 15 European countries
- Over 500 outbreaks of *P. ramorum* in E&W
- 27 outbreaks of *P. kernoviae* in E&W
- Extensive inspections by the PHSI and Forestry Commission – action wherever found
- Notify PHSI or Forestry Commission if an outbreak is suspected



Hosts

- Wide host ranges:
 - *P. ramorum* 53 genera naturally infected
 - *P. kernoviae* 10 genera naturally infected
 - Many more species are susceptible
 - *P. kernoviae* more aggressive?
- Host lists available at:
 - <http://www.defra.gov.uk/planth>
 - <http://rapra.csl.gov.uk>





Disease pathways

Movement of infected plants

Aerial spore dispersal

Through waterways

Direct plant to plant contact

Movement of contaminated soil and debris



Eradication measures 1

- Measures taken include:
 - Destruction within a 2m radius of the infected plants
 - Holding of susceptible plants within a 10m radius
 - Disinfection of surfaces
 - Infected soil/debris destroyed or sterilised
 - No treatments that will suppress symptoms
 - Intensive inspection of other susceptible genera on site



Eradication measures 2

- Measures for established ornamental plants (parks, gardens etc.) include:
 - Pruning and destruction of infected branches followed by intensive monitoring
 - Movement of infected plants prohibited
 - Control of any regrowth
 - Prohibit planting of susceptible plants for 3 years



Reducing Risk 1

- Don't accept susceptible plant material without a plant passport
- Notify your PHSI if you are offered susceptible material without a plant passport or if invalid
- Inspect material for symptoms before placing on the main site
- Consider establishing a 'quarantine area'
- Inspect susceptible material for symptoms



Reducing Risk 2

- Implement good hygiene measures
- Consider reducing the number of susceptible species
- Separate blocks of susceptible plants
- Avoid overhead irrigation
- Fungicides are unlikely to eradicate any infection and may mask symptoms
- No treatment for six weeks prior to purchase



Conclusions

- Important emerging pathogens
- Unique as environmental and horticultural aspects
- High level of scientific activity/interest
- Input in eradication/control strategies
- Be vigilant

