PLANT DISEASES CAUSED BY *Xylella fastidiosa*:
DETECTION, IDENTIFICATION, MONITORING AND CONTROL
Zaragoza (Spain), 12-16 November 2018

PROGRAMME

1. **Introduction (1 hour)** (M.A. Jacques)
   1.1. The genus *Xylella* and the species *X. fastidiosa*: taxonomy and identification
   1.2. Distribution
   1.3. Host range and symptomatology
   1.4. Vectors
2. **Main ongoing research programmes in the EU (1 hour)** (D. Boscia)
3. **Biology and ecology of *X. fastidiosa* in the host plants (2 hours)** (M.A. Jacques, L. de la Fuente)
   3.1. Host-bacteria interactions
      3.1.1. Colonization
      3.1.2. Plant defence
   3.2. *X. fastidiosa* genome analyses
   3.3. Virulence factors
4. **Biology and ecology of insect vectors and *X. fastidiosa* transmission (2 hours + 4 h practicals)**
   4.1. Known vectors of *X. fastidiosa*: USA, Brazil, Europe (4.1; 4.2; 4.3 and 4.4) (A. Fereres)
   4.2. Vector identification
   4.3. Life cycle of main vectors
   4.4. Insect-bacteria interactions: transmission mechanisms
   4.5. Practical work on vector sampling and identification (2 h sampling) (D. Cornara) + 2 h identification) (A. Fereres, D. Cornara)
5. **Current situation of *X. fastidiosa* worldwide: main diseases and socioeconomic impact (3 hours)**
   5.1. The Americas (1.5 h) (L. de la Fuente)
      5.1.1. PD – Pierce's disease of grapevine
      5.1.2. CVC – citrus variegated chlorosis
      5.1.3. ALS – almond leaf scorch
      5.1.4. Other leaf scorches of fruit and landscape trees
   5.2. Europe
      5.2.1. Italy: OQDS – olive quick decline syndrome (0.5 h) (D. Boscia)
      5.2.2. Corsica and PACA region, France (0.5 h) (M.A. Jacques)
      5.2.3. Balearic Islands and Alicante, Spain (5.2.3 and 5.3: 0.5 h) (B. Landa)
   5.3. Interceptions (B. Landa)
6. **Methods of inspection, sampling and monitoring of *X. fastidiosa* (3 hours + 2 h practicals)**
   6.1. Survey methodology: statistical basis, planning and implementation
      6.1.1. IPPC standards: ISPM6 and ISPM31; EU Guidelines; EPPO protocols for inspection (6.1.1 and 6.1.2: 2 h) (J.A. Navas)
      6.1.2. Practical example (J.A. Navas)
   6.2. Guidelines for sampling and sample preparation (1 h) (F. Valentini, F. Santoro)
   6.3. Demonstrative field practicals for plant sampling (2 h) (F. Valentini, F. Santoro)
7. **Methods for detection and identification of *X. fastidiosa* in plants and vectors (4 hours + 2 h practical proximal sensing + 2 h practical on-site detection)**
   7.1. EPPO protocol for *X. fastidiosa* diagnosis (1 h) (E. Marco)
   7.2. Subspecies and sequence-type identification (7.2 and 7.5.3: 1 h) (B. Landa)
   7.3. Molecular methods for on-site detection (1 h) (K. Djelouah)
   7.4. Proximal and remote sensing (1 h) (P. Zarco)

7.5. Practical work
    7.5.1. Proximal sensing (2 h) (P. Zarco)
    7.5.2. On-site detection (2 h) (Enbiotech, Agdia)
    7.5.3. Demonstration on MLST and NCBI database consultation (B. Landa)

8. Epidemiology of *X. fastidiosa* (2 hours)
8.1. Modelling (1 h) (J.A. Navas)
8.2. Pest risk assessment (1 h) (A. Vicent)

9. Strategies for *X. fastidiosa* control (3 hours) (D. Boscia, P. Saldarelli)
9.1. Quarantine, prevention and eradication
9.2. Containment
    9.2.1. Sources and search of resistance in host plants
    9.2.2. Agronomical and chemical tools for controlling vector populations
    9.2.3. Managing bacterial population in the plant

10. Legislation on *X. fastidiosa* in Europe (2 hours)
10.1. EU Decision 2015/789 and its amendments (10.1 and 10.2: 1 h) (P. Di Rubbo)
10.2. Implementation in the affected countries (P. Di Rubbo)
10.3. Example of a Contingency Plan: Spain (1 h) (B. Martínez)

11. Practical group work based on case studies (3 h working sessions + 1 h presentation of results) [D. Boscia, B. Landa, J.A. Navas, M.A. Jacques, B. Martínez, L. de la Fuente, A. Vicent, P. Saldarelli, P. Di Rubbo (only second day)]

12. Final discussion and closure (2 hours) (D. Boscia, B. Landa, J.A. Navas, M.A. Jacques, B. Martínez, L. de la Fuente, A. Vicent, P. Saldarelli, P. Di Rubbo)