

FOREWORD

**BACTERIAL DISEASES OF STONE FRUITS AND NUTS:
PHYTOBACTERIOLOGY, PHYTOSANITARY AND TREE HEALTH MANAGEMENT
ADVANCES FROM THE EUROPEAN RESEARCH AND TRAINING
NETWORK COST ACTION 873**

Stone fruits (cherry, plum, prune, peach, nectarine, apricot), with a planted surface area of 1,289,500 ha and a production of 9,359,000 Mt, of which 500,000 Mt of cherries and 522,000 Mt of peaches and nectarines produced in Turkey in 2009 and nuts (walnut, hazelnut, almond, pecan, pistachio), with a surface area of 840,000 ha and a production of 303,000 Mt in EU-27 and another 574,000 Mt in Turkey in 2009/2010, are important in the agricultural sector across Europe and the Mediterranean basin¹.

Bacterial diseases are often a major constraint to productivity. Yield losses, which may reach 50%, and tree death result from infections caused by established pathogens such *Xanthomonas arboricola* pv. *juglandis*, the agent of walnut blight, and *Pseudomonas syringae* pv. *syringae* and *P. syringae* pv. *morsprunorum* eliciting leaf and fruit spots, flower necrosis, tree canker and twig death. Quarantine pathogens, which are moving out of contained loci, represent a long-term threat to other European countries. A primary example is the spreading out of France and Italy of *Xanthomonas arboricola* pv. *pruni*, which was recorded for the first time in *Prunus laurocerasus* in the Netherlands, apricot and plum in Switzerland, almond in Spain, plum and apricot in Hungary, plum and peach in Slovenia. Other quarantine pathogens from outside Europe are an incumbent threat, e.g. *Xylella fastidiosa*.

The EU FP7 funded COST Action 873, chaired by B. Duffy (Switzerland), is a large network of leading European and Mediterranean specialists in 22 countries (plus Australia, New Zealand, and South Africa) working on bacterial diseases of stone fruits and nuts. It deals with bacterial diseases of stone fruits and temperate nuts grown in the EU and the Mediterranean basin caused by 15 pathogens, including four of quarantine status. A target group of pathogens constituting major threats to the agriculture-food sector in terms of economic (most damaging) and regulatory (quarantine) impact have been considered in all aspects of the Action (i.e., *X. a.* pv. *pruni*, *X. a.* pv. *corylina*, *X. a.* pv. *juglandis*, *P. s.* pv. *persicae*, *Brenneria nigrifluens* and *X. fastidiosa*).

COST873 was first and foremost an active network for training and young scientist career development, aimed at building capacity of European phytosanitary, host plant breeding and phyto bacteriology expertise and at developing new multidisciplinary networks for reactive and proactive responses to bacterial diseases of plants. COST873 effectively engaged a wide range of stakeholders (e.g., grower groups, phytosanitary inspectors, industry, regulatory agencies, and international organizations) to facilitate technology transfer from researchers to end users, and enable end users to inform and influence the direction of research. COST873 research was conducted within 4 working groups: WG1 'Diagnostics Pathogen Biodiversity and Pathogen Genetics', WG 2 'Epidemiology and Prevention', WG 3 'Host Resistance and Breeding' and WG 4 'Integrated Control Strategies'. The COST873 multidisciplinary and international research approach was facilitated by setting up Special Task Forces (STF) designed to bring together small groups of dedicated partners focused on specific deliverables, conduct ring-tests, and integrate young scientists into active international research. COST873 emphasized open-access information dissemination, so that plentiful information and training materials are available at www.cost873.ch

In 2011, a special issue of the Journal of Plant Pathology (vol. 92, Supplement 1) presented a collection of review articles from COST873. This companion special issue presents a collection of original research from each of the COST873 working groups, plus protocols for diagnosis of the bacterial pathogens studied, which describe detection and identification methods used during the project lifetime, and refer also to other useful methods.

We are confident that this special issue of JPP, with its overview of recent research and compilation of state-of-the-art diagnostic methods, will be of benefit to those engaged in fundamental and applied research, plant protection officers, staff of advisory services and growers in the field of stone fruits and nuts in the coming years.

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¹ [Sources: (i) http://gain.fas.usda.gov/Recent%20GAIN%20Publications/EU-27%20STONE%20FRUIT%20ANNUAL_Madrid_Spain-Italy%20EU-27_9-16-2009.pdf; (ii) <http://www.agriworldsa.com/article-archive/field-crops/Tree%20nuts%20EU%202027.pdf>; (iii) <http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/>]

