FOREWORD TO THE SPECIAL (MINIREVIEWS) JPP ISSUE ON ‘BACTERIAL DISEASES OF STONE FRUITS AND NUTS’

Stone fruits (cherry, plum, prune, peach, nectarine, apricot), with a surface given over of some 1,289,500 ha and a production of 9,359,000 Mt (of which 500,000 Mt of cherries and 522,00 Mt of peaches and nectarines produced in Turkey in 2009) and nuts (walnut, hazelnut, almond, pecan, pistachio) with some 840,000 ha planted in EU-27 and 303,000 Mt produced, plus 574,000 Mt produced in Turkey in 2009/2010 (http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/) are of great economic importance for the agricultural sector across Europe and the Mediterranean basin.

Bacterial diseases are often a major constraint to productivity. Yield losses (which may reach 50%) and tree death result from infections caused by alleged pathogens such as *Xanthomonas arboricola* pv. *juglandis*, the agent of walnut blight, and *Pseudomonas syringae* pv. *syringae* and *P. s.* pv. *morsprunorum*, the cause of leaf and fruit spots, flower necrosis, tree canker and twig death. Quarantine pathogens are spreading out of contained loci (e.g. *Xanthomonas arboricola* pv. *pruni* spreading out of France and Italy), thus representing a long-term threat to other EU countries, and others are an emerging threat from outside Europe (*Xylella fastidiosa*).

EU Action COST 873 is a large network of leading European and Mediterranean specialists from 22 countries (plus those from a few invited countries outside Europe) working on bacterial diseases of stone fruits and nuts, chaired by Switzerland (Brion Duffy). It covers bacterial diseases of all stone fruits and temperate nuts grown in the EU and the Mediterranean basin elicited by 15 pathogens, including 4 with a quarantine status. A focus group of pathogens, that are the major threats to the agriculture-food sector in terms of economic (most damaging) and regulatory (quarantine pathogens) impact, have been and are 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 nigri-fluens* and *X. fastidiosa*). The Action is strengthening existing European networks and develops new multidisciplinary links for reactive and proactive response to bacterial diseases of plants.

Within the Action four Working Groups are active, i.e. WG1, ‘Diagnostics, pathogen biodiversity and pathogen genetics’; WG2, ‘Epidemiology and prevention’; WG3, ‘Host resistance and breeding’ and WG4, ‘Integrated control strategies’. Main aims and activities of WGs are exchange of information, travel grants for short term scientific missions (STSM), organisation of meetings across Europe, development of research projects and collaborations, training of scientists and stakeholders, and dissemination of useful information on bacterial diseases. Special task forces (STFs) have been designed to focus on specific deliverables through ring-tests and new collaborations, also in order to validate diagnostic protocols. Over the past three years several workshops have been organised. For all activities see http://www.cost873.ch/0_home/index.php.

At the STCM meeting in October 2009 in Cetara (SA), Italy, it was decided that a number of key experts would summarize present knowledge and recent research on the different topics dealt with in the four Working groups in a minireview. The result of their activity is this special issue of the Journal of Plant Pathology, where the following topics are presented:

From WG1

- **Taxonomy of *Pseudomonas syringae*** by J.M. Young from New Zealand, giving an up-to-date report of the state-of-the-art of taxonomy and nomenclature of this plant pathogenic species, that includes several pathovars of great economic importance for stone fruits and nuts.

- **Species and infra-species phylogenetic discrimination of pseudomonad and xanthomonad pathogens of stone fruit and nuts** by N. Parkinson and J. Elphinstone from the UK, gives up-to-date information on present day taxonomic methods using genetic sequencing of different loci, including housekeeping genes.

- **Bacterial cankers caused by *Pseudomonas syringae*** on stone fruit species with special emphasis on the pathovars *syringae* and *morsprunorum* race 1 and race 2, by A. Bultreys from Belgium and M. Kaluzna from Poland, illustrates the state-of-the-art of detection and identification methods using biochemical, molecular and pathogenicity tests for these important stone fruit pathogens.
– *Xylella fastidiosa*: its biology, diagnosis, control and risks, by J.D. Janse from the Netherlands and A. Obradovic from Serbia, describes this quarantine bacterium, not yet detected in the European/Mediterranean basin area, its possible threats, ways of introduction and control.

– Diagnosis and detection of the main bacterial pathogens of stone fruit and almond by M.M. López, M. Roselló and A. Palacio-Bielsa from Spain, presents the state-of-the-art of detection and identification of some important species of *Agrobacterium* and *Pseudomonas*.

From WG2

– An update on apical necrosis of Persian walnut (*Juglans regia*) by C. Moragrera from Spain and H. Özaktan from Turkey, investigates apical necrosis of walnut, that recently emerged in walnut production areas of the Mediterranean basin, and describes its causal agents (bacterium and fungi).

– Epidemiology and status of walnut blight in Australia by M.D. Lang and K.J. Evans from Australia, describes a model for disease progress that may be of help in the control of walnut blight.

– Epidemiology and predisposing factors of some major bacterial diseases of stone and nut fruit trees species by M. Scortichini from Italy, discusses what is known and what is lacking in our epidemiological knowledge of the main bacterial diseases of stone fruits and nuts.

From WG3

– Bacterial diseases of walnut and hazelnut and genetic resources by D. Frutos from Spain, addresses possible sources of resistance and tolerance against the main bacterial diseases in these crops and the possible anatomical/physiological basis of this resistance.

From WG4

– Economic significance and control of the bacterial spot/canker of stone fruits caused by *Xanthomonas arboricola* pv. *pruni* by E. Stefani from Italy, explains the possible causes of epidemic occurrence of this disease and ways to prevent and control such epidemics.

– Crown gall of stone fruits and nuts - economic significance and diversity of its causal agent - tumorigenic *Agrobacterium* spp. by J. Pulawska from Poland, describes the diverse *Agrobacterium* species and strains and their mode of infection, causing the often economically important crown gall disease.

Two additional minireviews on Biosafety and registration of biocontrol agents, by B. Duffy and B. Blum (WG4) and on Diagnostics and diversity of *Xanthomonas arboricola* pv. *juglandis*, by C. Manceau (WG2), will be published separately in a regular issue of the Journal of Plant Pathology.

We are sure that these minireviews will be of benefit to fundamental and applied researchers in the field of stone fruits and nuts, plant protection officers, staff of advisory services, and growers in the coming years.