

Van Alfen, N.K., Bruening, G., Leach, J.E. (ed.): **Annual Review of Phytopatology. Volume 49.** - Annual Reviews, Palo Alto 2011. 576 pp. ISBN 978-0-8243-1349-4

Annual Reviews of Phytopathology traditionally comprise review articles on topics in the field. This volume starts with George Bruening recollection on virus research, memories on agricultural scientist Norman Borlaug and extensive excellent research on plant defence activation by Chris Lamb. Following articles update current knowledge of plant defence mechanisms such as the role of reactive oxygen species in plant interaction with phytopathogenic fungi, hormonal signalization in plant defence, where besides classical defence hormones salicylic acid, jasmonic acid and ethylene, the authors also concern the role of auxins, cytokinins, abscisic acid and brassinosteroids. Our current understanding of plant cellular responses to pathogen attack deepens one of the next articles devoted to plant actin cytoskeleton, its genetic and biochemical regulation, and relatively new topic autophagy in plant innate immunity response. Recognition of invading pathogens has been attracting plant pathologists for decades, but the mechanism of nematode recognition by host plant is less known. The role of patterns present on the surface coat of plant-parasitic nematodes in host-parasite interaction is discussed. Other reviews are devoted to less explored organisms as phytoplasmas, endophytes and micro-

biomes. Some of the articles overlap to ecology, e.g. co-evolutionary framework for managing disease-suppressive soils, field application of endophytes as biocontrol of pathogens or in phytoremediation, or detection of diseased plants by analysis of volatile organic compound emission with emphasis on agricultural application, as well as water relation in the interaction of foliar bacterial pathogens with plants. Attention is also paid to plant viruses, e.g. RNA recombination in plant virus replication or their less common vectors as whiteflies. Several reviews deal with particular important phytopathogens. Utilization of new techniques as next-generation sequencing and associated bioinformatics has enabled comparative analysis of genomes and study of bacterial host specificity and virulence even in such well explored organisms as *Pseudomonas syringae*. The rest of the book focuses on current status and future directions of important phytopathogens *Phytophthora infestans*, *Clavibacter michiganensis*, *Rhodococcus fascians*, as well as present threat to world wheat production wheat rust caused by *Puccinia graminis* races Ug99, and re-emerging yellow rust disease caused by *Puccinia striiformis*.

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