BOOK REVIEW

Madden L.V., Hughes, G., Van den Bosch F. 2007. The Study of Plant Disease Epidemics. APS Press – The American Phytopatological Society, St. Paul, Minnesota, U.S.A. 421 pp. ISBN 978-0-89054-354-2

In the "Preface" the authors cite the statement of Jurgen Kranz who wrote in 1990 that "Epidemiology provides plant pathologists with refined and deepened knowledge of the behavior of diseases in the field for improved disease control management". Developing this idea the authors of this book make statement that …"statistical and mathematical approaches are essential both to study epidemics and to interpret epidemiological data for the purpose of developing and evaluating control strategies and tactics". They also emphasize that unfortunately, very few control tactics are based on such approach and among farmers and practitioners dominates believe that a decisive factor in plant protection is an increased number of chemical spraying with fungicides and bactericides. This book has the aim to improve the present situation.

Chapter 1 "Introduction" (p. 1–10) deals with general topics and the authors give some general information and definitions concerning disease epidemic and the literature published during 1974–2006.

Chapter 2 "Measuring plant diseases" (p. 11–31) provides information on surface and remote methods of assessing disease intensity using image analysis.

Chapter 3 "Introduction to modeling in epidemiology" (p. 33–63) concerns the definitions and general classification of quantitative (mathematical) models of plant epidemics and provides advices on their application.

Chapter 4 "Temporal analysis – I: Quantifying and comparing epidemics" (p. 63–116) in a clear way classifies epidemics and provides practical advice on disease control strategies.

Chapter 5 "Temporal analysis II: The components of disease" (p. 117–143) presents models of polycyclic diseases having many cycles during an epidemic. Detailed analysis of usefulness of Vanderplank's model and the Kermack and McKendrick's model is provided.

Chapter 6 "Temporal analysis III: Advanced topics" (p. 145–171) discusses several models concerning: (a) continuous crop growth, (b) seasonal cropping, (c) role of primary infection, and (d) epidemic with vector transmission.

Chapter 7 "Spatial aspects of epidemics – I: Pathogen dispersal and diseases gradients" (p. 173–209) deals directly with characterizing disease spread. Exponential and power model of dispersal and disease spread are compared.

Chapter 8 "Spatial aspects of epidemics – II: A theory of spatio-temporal disease dynamics" (p. 211–233) compares two examples: (1) large scale spread: the case of potato late blight caused by *Phytophthora infestans*, and (2) small scale, focus expansion of stripe rust of wheat caused by *Puccinia striiformis.*

Chapter 9 – "Spatial aspects of epidemics – III: Patterns of plant disease (p. 235–278) discusses theoretical and practical aspects of this problem using as examples epidemics caused by Tomato spotted wilt virus and *Citrus tristeza virus*.

Chapter 10 – "Estimating plant disease by sampling (p. 279–318) explains "Why we sample for epidemiological data?" and provides tools and recommendations how to estimate disease severity. It is not easy task comparing with methods used in economic entomology.

Chapter 11 – "Decision making in the practice of plant disease management" (p. 319–351) concludes that the sampling methods developed for use in control of insect pests have found little direct application in the management of plant disease. The reasons of this situation are explained by fact that visual inspections of crops for disease do not detect latent (or pre-symptomatic) infection.

Chapter 12 – "Epidemics and crop yield" (p. 353–388) summarizes the topics presented and discussed in previous chapters. The general conclusion is following on p. 388: "A considerable amount of research still lies ahead for those who are concerned about crop loss assessment".

Without any question this is an excellent treatise concerning such an important subject as evaluation of occurrence of plant pathogens and estimation of economic losses they cause in crop production. The authors and the APS Press merit congratulations on providing the researchers and practitioners such an excellent treatise concerning plant protection.

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