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BOOK REVIEWS

Analysis of Variance and Covariance: How to Choose and Construct Models for the Life Sciences. By C. P. Doncaster and A. J. H. Davey. Cambridge: Cambridge University Press (2007), pp. 302, £65.00 (hardback), £25.99 (paperback). ISBN-13:978-0-521-86562-3 (hardback), ISBN-13:978-0-521-68447-7 (paperback). doi:10.1017/S0014479708007254

This book presents details of the analysis of variance for a compendium of designs with up to three treatment factors. The book has a good discussion of practical situations where each design may be useful, ranging from the authors' interests in ecology to more conventional examples from agricultural and medical research. It shows schematic plans of the type of data that will be collected, and the analysis of variance tables that should be generated. It also contains good advice about assumptions and interpretation of the analysis. It should thus be an invaluable reference for the target audience of post-graduate researchers. I do, however, have some concerns. The book requires considerable prior knowledge of design and analysis of variance, and has a tendency to use concepts before they are explained. Having a PhD in statistics I found this an interesting challenge, but a recent (non-statistical) MSc graduate soon became confused and discouraged. Nevertheless, the concepts are nearly all explained somewhere in the book, so persistence would be rewarded. More importantly, though, I am sceptical about the concept of a compendium of specific examples, and would have preferred to see more attention given to the underlying principles of design and anova, such as randomization, blocking and treatment structures. Readers would then be able to generalize the ideas, for example, to four-factor designs or to some of the omitted three-factor designs such as Latin squares with split plots. Nevertheless the book has many strengths and I am happy to recommend it.

Roger W. Payne

Modeling Crop Production Systems. Principles and Application. By P. Singh, Enfield NH, USA: Science Publishers (2008), pp. 512, £33.30 (paperback). ISBN 9-781578-084180. doi:10.1017/S0014479708007266

This is a book aimed at a broad church but, in my view, is most suited to numerate agronomists with an interest in the use of computational methods at the more applied end of science. The nature of the area demands a wide range of techniques and Singh's book bravely attempts to cover the key elements in one volume. Thus, there is a need to strongly focus on the most relevant elements and avoid the temptation to cover too many topics in insufficient depth, and it is here that I thought the book fell a little short. For example, in my view this book spends too much time on computer implementation and not enough time on analysis. Programming style, languages and pieces of code are a matter of experience and taste, and are also quickly outdated. Analysis techniques are less subjective, evolve more slowly and are key to reaching a better understanding of what we observe. That is not to say that Singh ignores this aspect, however, I doubt if the depth is sufficient to inform the student to a level where she/he could apply the techniques without the need to resort to other books. That said, the later chapters covering numerous examples of applications are a a particular strength of the book. The book refers to the 1984 edition of *Mathematical Models in Agriculture* by France and Thornley. Students considering moving in to this area might usefully compare Singh's book to the more recent 2007 edition of France and Thornley.

John Crawford

Climate Change and Agriculture in Africa. Impact Assessment and Adaptation Strategies. Edited by A. Dinar, R. Hassan, R. Mendelson, J. Benhin and Others. London: Earthscan/Centre for Environmental Economics and Policy in Africa (CEEPA) (2008), pp. 189, £49.95. ISBN 13:-978-1-84407-547-8. doi:10.1017/S0014479708007278

The goal of this book was to develop multipliable analytical methods and procedures to assess quantitatively how climate affects current agricultural systems in Africa, predict how these systems may be affected in future by climate change and suggest what role adaptation should play.