Theor Appl Genet (1991) 82:662

THEORETICAL AND APPLIED GENETICS

Book reviews

van Loon, C. D.; von der Heij, D. G. (eds.) Potato Terms, Trilingual Dictionary of the Potato. Wageningen: PUDOC 1989. 402 pp., Hard bound US $ 41.–.

This polyglot book represents a valuable help in understanding texts on potatoes which have been written in the European community (and of course in the whole world) in the three main languages, English, French, and German.

The dictionary is the result of many years of collaboration between members of the European Association for Potato Research. This trilingual dictionary is mainly due to the indefatigable preparatory work of the late Dr. A. R. Wilson, who collected technical terms related to the potato.

Four hundred pages are dedicated in three languages to potato terms, with a short annex for latin names. The book is well presented in hard cover and deserves wide-reaching distribution.

Brücher, Mendoza, Argentina

Gianola, D.; Hammond, K. (eds.): Advances in Statistical Methods for Genetic Improvement of Livestock. Berlin, Heidelberg, New York: Springer 1990. 534 pp., 5 figs., Hard bound DM 138,–.

This book is based on an international symposium that took place in Armidale, Australia, February 1987. It contains reviews and consolidates the statistical foundtions of animal breeding in the light of developments over the last 20 years. This 23-chapter volume is organized into seven main sections: (I) General, (II) Design of Experiments and Breeding Programms, (III) Estimation of Genetic Parameters, (IV) Prediction and Estimation of Genetic Merit, (V) Prediction and Estimation in Non-Linear Models, (VI) Selection and Non-Random Mating, and (VII) Statistics and New Genetic Technology. Each of the sections contains three or four "main" chapters written by well-known experts in statistical genetics. The book is written for experts of statistics in animal breeding and presuppose previous knowledge not only in mixed linear model methodology, which is now considered to be a standard procedure in animal breeding, but also in statistical inference and quantitative genetics. There have been numerous different publications over the last 20 years on the application of statistics in animal breeding, and it is difficult for the experts themselves to have a survey. Therefore, all those working in this field should be grateful for this single volume, which reflects the state of our actual knowledge. It is valuable plus point that both Bayesian and frequentist approaches have been considered. This book is a guide to the actual scientific level of statistical methods in animal breeding. In agreement with the editors, I think that this book will be useful in stimulating the further statistical research needed in this area.

I advise experts to buy it.

D. Sumpf, Rostock

Rigby, P. W. J. (ed.): Genetic Engineering 7. London, San Diego, New York, Boston, Sydney, Tokyo, Toronto: Academic press 1988. 127 pp., several figs. and tabs. Soft bound.

This 7th volume of the series "Genetic engineering" concentrates on the biology, molecular biology and genetics of the parasitic kinetoplastidae, especially that of trypanosomes and leishmanias, as well as on mammalian expression vector host-cell systems.

In the first chapter C. E. Clayton describes "The molecular biology of the kinetoplastidae". This knowledge is not only important for genetic engineering purposes, but is also useful for furthering the experimental purposes of biochemists and molecular biologists because these organisms differ from other ones by some interesting pecularities. For instance there is a large aggregate of mitochondrial DNA (kinetoplast) comprising 10%–20% of the total DNA content that consists of mini- and maxi-circles, as well as antigenic switching in the genome of trypanosomes. There is also the regulation of gene activity by a mini-exon sequence at the 5′ end of the VSG transcripts. Nearly all African and South American trypanosomes and leishmanias are parasites of medical or veterinary importance; drugs for treatment, however, are yet unsatisfactory.

In the chapter "The cloning of antigens from malarial parasites and *Leihsmania* species" J. G. Scaife introduces the molecular biology of these protozoa. Unusually organized surface proteins of the extracellular form or of the schizont of *Plasmodium* are potential components for vaccine production. For leishmaniasis, DNA technology is of a diagnostic value.

In the third chapter "The production of foreign proteins in mammalian cells" M. M. Bendig concentrates on mammalian cell expression systems with high levels of transient expression by increasing the number of foreign gene copies by linkage with an amplificable gene; the system is dependent on the induction of protein synthesis by heat shock, heavy metals or glucocorticoids.

In the first two chapters the authors try to show new ways for therapy based on advanced insights into the biology of these organisms for genetic engineering. The third article is based on the successful research on gene technique of mammalian systems and describes the well-established vectors and widely used cell lines, the possibilities of application and the difficulties in the production of foreign proteins.

E. Günther, Greifswald

Beukema, H. P.; van der Zaag, D. E.: Introduction to Potato Production. Center for Agricultural Publishing & Documentation PUDOC: Wageningen 1990. 208 pp., 93 figs., 66 illustrations and tabs. Soft Bound US $ 29.–.

The second edition of this short but valuable book on potato production has been improved considerably. In 17 short chap-

ters the reader is presented with comprehensive, up-to-date information on potato production practices. Many graphics and tables support the text, which is easy to read and understand, so that not only potato breeders but also potato farmers can take advantage of this 200-page book. The morphology and physiology of *Solanum tuberosum* is well described. Mileading and obsolete theories created by various physiologists about "dormancy", "senescense of clones", etc., are not even mentioned. All of the factors influencing tuber yield are thoroughly covered in chapters 4, 5, and 6. The environmental conditions which affect potato growth and quality are enumerated in the immediately following chapters. The description of harvest methods contains valuable new ideas on the storing and ventilation of tubers. The final chapters offer good advice on the production of seed potatos and the organization of seed programs in developing countries. In discussions on the origin and place of domestication of the tetraploid potato (*S. tuberosum* L.) the obsolete theories of Russian-Chilean descent (e.g., "Genecentre Chiloé") have fortunately not even been mentioned.

The authors H. P. Beukema and D. van der Zaag deserve the thanks of potato breeders for this interesting book.

H. Brücher, Mendoza, Argentina

Hansel, W.; Weir, B. J. (eds.): Genetic Engineering of Animals. Proceedings of the Second Symposium on Genetic Engineering of Animals, Journal of Reproduction and Fertility Suppl. No. 41. 1990. 240 pp., 54 figs., 43 illustrations and tabs. Hard bound $ 82.00.

This book contains 20 papers and 34 poster abstracts written by 201 authors and co-authors, most very well-known scientists in developmental biology and gene transfer, and is classified into nine sections: (1) An overview of recent developments (1 paper); (2) DNA: general (2 papers), (3) Gene delivery (2 papers); (4) Disease resistance (2 papers); (5) Transgenic pigs (3 papers); (6) Transgenic fish (1 paper); (7) Transgenic ruminants (3 papers); (8) Transgenic poultry (5 papers); (9) Future potential (1 papers).

The papers contained in this volume mainly represent recent developments in the production of transgenic domestic animals, including sheep, pigs, cattle and poultry. The main subjects reported in this book consist of strategies for producing transgenic animals with increased potential for growth, reproduction, lactation and disease or stress resistance. The book is rounded off by several papers on in vitro fertilization, nuclear transplantation, embryo cloning, embryo stem-cell technology, embryo sexing, targeted gene insertions, promoters and the use of novel reporter genes.

The book is a rich source of information in a compiled form and is valuable to scientists engaged in animal biotechnology in general and in gene transfer in particular.

M. Schwerin and K. Roschlau, Dummerstorf

Griffiths, A. J. F.: 100+ Principles of Genetics. New York: W. H. Freeman and Co. 1989. 387 pp., several figs. and tabs. Soft bound. $ 13.95.

The first part of the book is an illustrated dictionary providing an overview of classical, molecular and population genetics by presenting 120 basic points or principles in only 241 pages, about a quarter of them being written text. The special value of the book is that the principles are explained in a very simple way, focussed on the important topics and presented, if possible, by modern research examples. Informative illustrations facilitate the understanding of the very compact text. The book can be recommended to those who want to obtain information on genetics within a very short time or who need a comprehensive review for exams or advanced courses as a supplement to an introductory textbook.

Depending on the brevity of the text some points may not give the right impression, as for instance in point 20 (DNA replication) or in point 30, example 3: T-DNA of Ti-plasmids is inserted into the plant chromosomes (as correctly shown on page 59) and not T_2-plasmids. The definition of the term chromosome mutation in point 39 should be corrected. If point 99 is intended as an example of maternal inheritance the progeny of the cross ♀ green × ♂ white would be green.

In contrast to the well-balanced precise shortness of the first part, the second part "Solved problems" focusses on examples of homologous recombination in eukaryotes. In this part the author tries to enable the reader to solve genetic problems by asking questions and offering ways of solution. Problem 7 on page 259, however, should be given in a more understandable form.

E. Günther, Greifswald

Walden, R.: Genetic Transformation in Plants. Englewood Cliffs, New Jersey: Prentice Hall 1989. xii+138 pp., several figs. and tabs. Hard bound.

When I received the book 'Genetic Transformation in Plants' by R. Walden, my first impression was: again one of those books describing recent developments in plant molecular biology based mainly on *Agrobacterium* research. However, in reading the book I soon developed a very positive impression about the contents. Although it indeed contains certain well-known aspects of plant molecular biology and *Agrobacterium* research, it is the way this information is presented that gives this book its positive character. The contents deal with transformation, and the significance of *Agrobacterium* in the development of transformation is described very simply and straight-forwards. The most positive point is the surveyability of this book, demonstrated by the way the various genetic markers for use in plant cells are summarized and described. Also, the various vectors that have been constructed are presented very clearly. The use of transformation in studying gene expression is not updated so well, this is a pity. On the contrary, the way transformation can be used in engineering plants is described nicely, and the final chapter about future directions in plant transformation is a realistic vision on what can be done and is being done with transformation systems. In conclusion, although there are many books about transformation, this new admission to this field is a very valuable one and is of importance to all those interested in this field.

G. J. Wullems, Nijmegen