

The genetics of the pig

Editors: M F Rothschild & A Ruvinsky

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The history of modern pigs goes back about 5000 years when the Chinese first began to domesticate the Eurasian wild boar (*Sus scrofa*). This was apparently repeated independently by Europeans some time later, the result being that modern pigs have 2 lineages, Asian and European, with different morphological and behavioural characteristics. Interestingly, it is contended in the book that the domestication of pigs, certainly in China, was not only to provide a dependable source of protein but also for organoleptic (taste) reasons. Thus it is contended that few Chinese dishes do not contain pork in one form or another and that 40 % of the red meat consumed in the world today is pork.

This comprehensive overview of the genetics of domestic pigs is the 2nd in a series by this publisher on the genetics of domestic animals: the sheep was first and cattle will apparently soon follow. According to the editors, this edition is intended to provide a diversity of readers, including students, researchers, veterinarians and pig breeders, with up-to-date information on this rapidly evolving subject. In addition to expected chapters covering aspects such as breeds and the genetics of morphological features, including performance and carcass traits, there are chapters on recent developments in molecular, biochemical, immuno- and cytogenetics as well physical chromosome maps. So if you would, for example, like to know the basis of comparative chromosome painting, the subject is covered in about 3 pages. These essentially molecular subjects, while described in considerable scientific detail, are nevertheless reasonably comprehensible to non-specialists. As an illustration of the rapidity of their development the editors point out that in 1990 only about 50

pig genes and markers had been mapped to individual chromosomes whereas by the end of 1997 this number was approaching 1800 loci. The chapter on linkage mapping describing how it is done is excellent, while, at the end of the book, there are comprehensive genetic linkage maps for each of the 18 autosomal and both sex chromosomes as well as a list of identified loci in the pig. Also not expected, but interesting, is a chapter on the potentially important exploitation of the genetics of behaviour.

There is a long list of inherited disorders in the chapter dealing with this subject, with an indication as to the reliability of evidence for single-locus inheritance of each disorder, as well as a bibliography that will be useful to practitioners who specialise in pigs. How discriminating this information is, however, is questionable because the information provided for the only condition described of which the reviewer has some knowledge, namely spongiform encephalopathy, is likely to mislead people with a limited background in the subject.

Other chapters cover the biology and genetics of reproduction, transgenics and modern reproductive technologies, developmental genetics and a very useful chapter on the global programme for the management of genetic resources as it applies to pigs. Finally there is a chapter on standard nomenclature and a 'pig genetic glossary'.

This well written and edited book is recommended as a ready reference for practitioners and researchers who specialise in the diseases of pigs. It is also an excellent starting point for those of us with an interest in establishing resistance to infectious diseases in pigs despite the fact that this vital subject is not addressed directly.

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