

Preface

Genetics has become one of the most exciting and ground-breaking sciences since the structure of DNA was first described in 1953, and animal genetics is an important branch of genetics. When I first started the Curriculum Construction of Animal Genetics as a bilingual teaching course over 15 years ago, I had a hard time to find a suitable English text book for animal science students. Now the Animal Genetics is established to teach in English almost completely, and the text material is also built up to a good extent.

Animal genetics is the fascinating and exciting subject for significant discoveries are being made daily, particularly in the area of molecular genetics. It is also of central importance and basic course for students in animal sciences because genes are the principal determinants of all life processes. Our knowledge and understanding about animal genetics has progressed at an incredible rate, the many applications of this exciting flood of discoveries continue to contribute our research in the quality and quantitative improvement of domesticated animals and bring benefits to humanity. This book has been carefully presented the comprehensive, quality coverage of the field of animal genetics in an accessible manner, hoping to make it easy for students to follow. In consideration of both exiting knowledge of students and the integration of animal genetics development, the book covers all major areas, but to be abstract and more intuitive in classical genetic material and more factual and current in molecular aspects. Students will be able to integrate their understanding of the abstract nature of genes from the transmission genetics part with the molecular nature of genes. The content is more concise in the chapters including the Genetic Material and Chromosomal Basis of Inheritance, Transmission of Genetic Information and Mendelian Genetics; however, some classic experiments are described in detail for these are the foundation of our present understanding of genes and a number of these discoveries leading to Nobel Prizes. The molecular part, changes made most rapidly, is updated and present at a suitable level. The formula derivation process is omitted in the chapter of Population Genetics and Quantitative Genetics so as to avoid repetition with the content of biostatistics.

Due to the length limitation, one important part—problems and brief answers of each chapter and case study designed for instructors and students to engage in active and cooperative leaning approaches—is not included in this book, and they are in the course website.

Great efforts have been taken to reflect the rapid developments in the field and provide the

