

**BIOLOGICAL ASPECTS
OF ANIMAL BREEDING AND PRODUCTION**

Bydgoszcz, Poland, December 2005

Conference Organizers

Faculty of Animal Sciences, University of Technology and Agriculture in Bydgoszcz
Slovak Agricultural University in Nitra
Bydgoszcz Circle of the Polish Society of Animal Production

Editorial Staff

**Wojciech KAPELAŃSKI, Ondrej DEBRECÉNI,
Zenon BERNACKI, Marek BEDNARCZYK**

Preface

Farm animal breeding and production fall into the section of applied sciences which over the last few years have become more and more important. The 20th century finished with a great growth in animal productivity accompanied by the intensive use of traditional breeding methods. The 21st century from its very start has been determining new animal farming objectives and defining requirements which are a challenge for both science and practise. The main research trends focus on animal product quality, factors determining a high degree of so-called safe food and its dietary values. Much attention is also paid to animal welfare, maintaining biodiversity within respective species and organic forms of food production. Meeting these challenges requires a different approach to research facilitating breeding practice. It is necessary to carry out basic research defining the biological grounds for more intensive animal production.

This new approach has resulted in the dynamic development of research methods in molecular genetics and bioinformatics and their application in investigations of the genome of individual animal species over the last few years. Genome mapping and using the relations with productive and reproductive characters in animals, immunity to diseases and long lifespan as well as the quality and healthiness of the products obtained are becoming important elements of contemporary research. Another top field of study of comprehensive animal biology is embryology which, along with genomics, provides grounds for animal biotechnology development.

The aim of the organizers of the First Scientific Conference “Biological Aspects of Animal Breeding and Production” is a presentation of research carried out at the Faculty of Animal Sciences, the University of Technology and Agriculture, in cooperation with domestic and foreign scientific units. The spectrum covers different fields of biology which aim at enhancing animal production and meeting the requirements determined by contemporary consumers of products of animal origin. The papers and reports included in the present volume were presented at the International Conference held on December 2, 2005 at the University of Technology and Agriculture in Bydgoszcz. The materials published cover a total of 31 papers divided into four different biology sections, based around the topic of the conference. This categorization was meant to facilitate the understanding of the concept and topic of the conference for the Reader.

1. Animal Physiology and Anatomy

This section presents e.g. papers on blood buffering capacity of hibernators and nonhibernators acclimatized to cold and short photoperiod, defines ileal digestibility in foxes, as well as the effect of different levels of cellulose in broiler chicken diet on the proteolytic activity of the pancreas. The anatomical research concerned mostly variation in the aorta branches and encephalon arteries in wild animals (fox and roe deer), as well as biometric characters and cranial cavity volume in boar and domestic pig.

2. Animal Genetics, Use and Feeding

This section presents e.g. research achievements at home and abroad determining genetic markers in different animal species. The research covers cross-breed differences in the occurrence of Ag-NORs in pigs as well as the effect of *MYF3*, *MYF5* and *MYF6* genotypes on pig meat quality characteristics. This section also reports on the reproductive use of pheasants. Another group of papers reports on the application and effect of feed additives (e.g. probiotics and prebiotics) on functional characters in farm animals.

3. Product Quality

This section includes papers on the quality of pork, content of fatty acids and cholesterol in cow and goat milk and duck egg quality. The analyses included e.g. farm animal muscle microstructure, content of heavy metals in fish and the content of flavones in radish and alfalfa sprouts.

4. Ecology and environmental Protection

The section offers e.g. reports on the effects of agrotechnical practises on meadow and pasture soil mites (Acari). The abundance and hatch success of a black-headed gull (*Larus ridibundus*) population on a selected water region of the Kujawy and Pomorze Province was also analysed. Environmental protection research concerned mostly the content of pathogenic bacteria in meat industry waste water.

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EDITORIAL COMMITTEE

Wojciech Kapelański

Dean of the Faculty of Animal Sciences,
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