



XII<sup>th</sup> International Congress

ISAH 2005

Warsaw, Poland

# Animals and Environment

## Proceedings

Volume 1

Editor: A. Krynski, R. Wrzesien

Organized by  
International Society for Animal Hygiene  
and  
Faculty of Animal Science of Warsaw Agricultural  
University  
Division of Animal and Environment Hygiene

Warsaw 2005

***“Sustainable mutual relations between animals and  
the environment – the most important in our civilization”***

---

**Scientific Committee:**

Prof. dr hab. Bogdan Debski - Warsaw Agricultural University

Prof. dr hab. Zbigniew Dobrzanski - Agricultural University in Wroclaw

Prof. dr hab. Eugeniusz Herbut - National Research Institute of Animal Production in Balice

Prof. dr hab. Andrzej Krynski - Warsaw Agricultural University

Prof. dr hab. Zygmunt Pejsak – National Veterinary Research Institute, Pulawy

Prof. dr hab. Eligiusz Rokicki - Warsaw Agricultural University

Papers indexed in the CAB Abstracts Database.

Selected papers will be placed on the website of Feedinfo News Service: [www.feedinfo.com](http://www.feedinfo.com)

**Congress Provider – Scientific Service D.D.D. Robert Wrzesien**

ISBN 83-89968-31-2

**Warsaw 2005**

## Congress Organization

---

### **National Organizing Committee**

**President - Andrzej Krynski**

**vice-president - Robert Wrzesien**

**Secretary - Teresa Majdecka**

**Members - Angelika Bien-Markowska, Elzbieta Budzinska-Wrzesien, Marta Chudzicka-Popek, Ewa Skibniewska, Katarzyna Skrzymowska, Grazyna Urbanska-Slomka, Henryka Zarska.**

**Faculty of Animal Science, Warsaw Agricultural University**

**Ciszewskiego str. 8 02-786 Warszawa**

**E-mail address: zoo\_kbsz@alpha.sggw.waw.pl**

### **Executive Board of ISAH**

**President - Prof. Dr. Andrzej Krynski, Warsaw Agricultural University, Poland**

**Secretary - Dr. Francois Madec, AFSSA, Ploufragan, France**

**1st vice president - Prof. Dr. Jorge A. Saltijeral, State University, Mexico**

**2nd vice president - Prof. Dr. Andres Aland, Agricultural University Tartu, Estonia**

**3rd vice president - Prof. Dr. Reinhard Böhm, Universität Hohenheim, Germany**

**Treasurer - Prof. Dr. Bo Algers, Swedish University of Agricultural Science Sweden**

**Members -**

**Prof. Dr. Thomas Blaha, School of Veterinary Medicine Hanover, Germany**

**Prof. Dr Pal Rafai, University of Veterinary Science Budapest, Hungary**

**Prof. Dr. Ir. Martin Tielen, The Netherlands**

## **Extended Executive Board of ISAH**

### **Country representatives from:**

Albania	Estonia	Poland
Algeria	Finland	Portugal
Argentina	France	Romania
Australia	Germany	Russia
Austria	Greece	Slovak Republic
Belgium	Hungary	Slovenia
Bolivia	India	Sweden
Brazil	Iran	Switzerland
Bulgaria	Iraq	Syria
Cameroon	Israel	Tanzania
Canada	Italy	The Netherlands
China (Hong-Kong)	Latvia	Ukraine
Croatia	Lesotho	Uruguay
Cuba	Lithuania	USA
Czech Republic	Mexico	Zimbabwe
Denmark	Nigeria	
Egypt	Norway	
El Salvador	Philippines	

### **PROF. TIELEN FOUNDATION**

*Prof. Tielen Foundation supports young scientists in participating in the XII<sup>th</sup> Congress on Animal Hygiene in Warsaw, Poland .*

The young scientists from East European Countries and developing countries from all continents were interested in the participation in the XIIth Congress on Animal Hygiene organized in Warsaw. Thanks to Prof. Tielen Foundation's support, twenty young scientists could take part in this Congress and print their papers in the Book of Proceedings.

Prof. Tielen - thank you for your activity.

Sponsored by

---

**HIS MAJESTY RECTOR OF WARSAW AGRICULTURAL UNIVERSITY,  
PROF.DR HAB. TOMASZ BORECKI**

**ALLTECH POLAND SP. Z O.O.**

**BEST – PEST, SPOLKA JAWNA**

**CARGILL POLSKA SP. Z O.O.**

**DSM NUTRITIONAL PRODUCTS**

**ELANCO – ELI LILLY S.A.**

**LOT – POLISH AIRLINES**

**NATURAN – JOINT VENTURE COMPANY**

**TRONINA – PRZEDSIEBIORSTWO HODOWLANO -WDROZENIOWE**

**VITTRA PHH – PRZEDSIEBIORSTWO PRODUKCYJNO HANDOWE**

## **PREFACE**

---

As for the history of the International Society for Animal Hygiene the Congress the first time it took place in Poland. It is also important since Poland has joined to the United Europe some problems connected with animal hygiene in UE during the Congress are undertaken.

The XIIth Congress of ISAH is held in Warsaw, September 4-8<sup>th</sup> 2005 in the Campus of the Agricultural University. The leading topic of this Congress is „Animals and Environment”. More than 150 scientists from over 50 countries present theirs papers.

The scientific part of the Congress divides into three plenary sessions: herd-health management as a tool for improving health and production of livestock; environmental protection and public health in respect to animal hygiene; animal welfare as an integral part of sustainable animal production.

In parallel sessions authors will present (in oral and poster presentations) the current state of science and practice in the following fields: health and environment in cattle, pigs, poultry production; welfare and behaviour of animals; waste management; disinfection; food safety and veterinary public health and other subjects connected with animal hygiene.

We direct our thanks to the invited speakers, to all contributors with oral and poster presentations, and to the scientific and organizing Committees whose enthusiasm has made the organization of this Congress possible.

Andrzej Krynski

Robert Wrzesien

Editors