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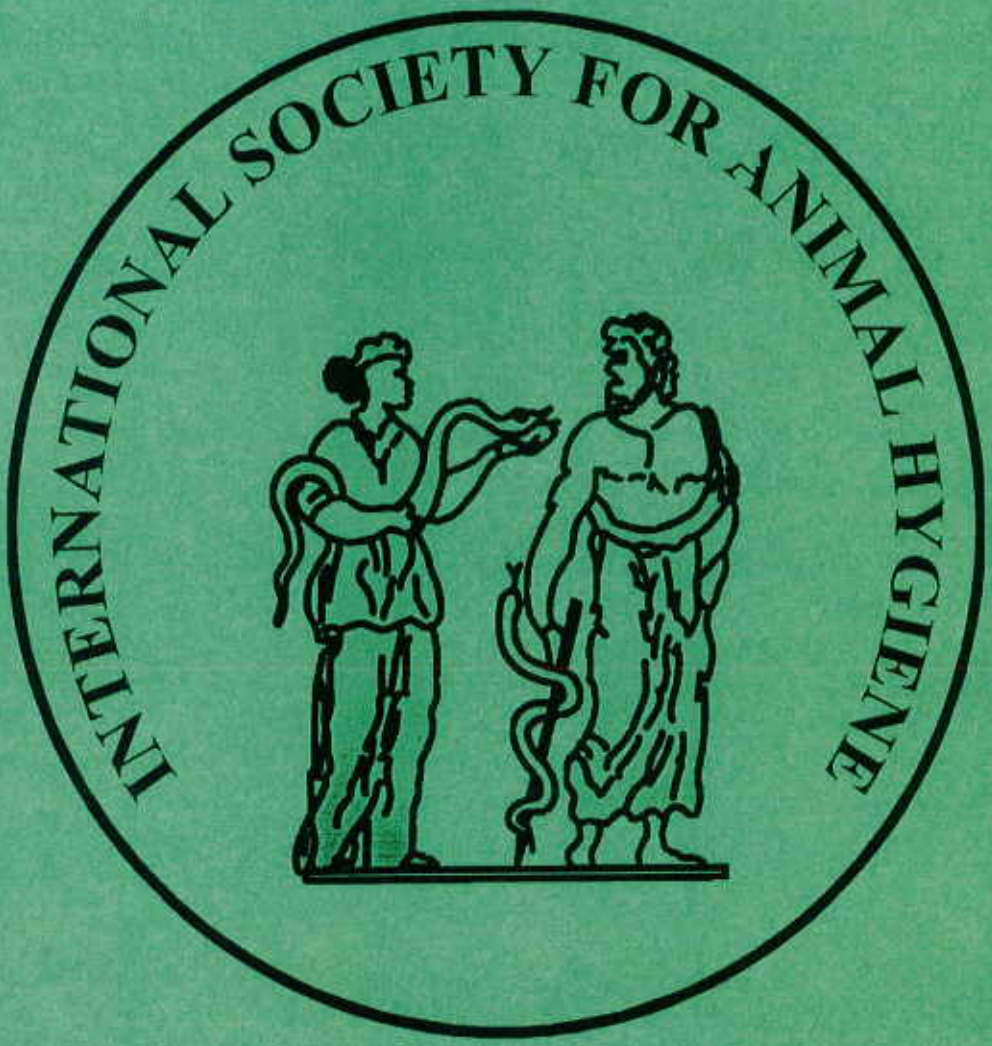

International Society for Animal Hygiene

Newsletter n° 4

Dear Members of the International Society for Animal Hygiene

EDITORIAL

Dear Members of the ISAH

In this fourth newsletter of our Society the contribution of teachers about education in Animal Hygiene in the different Colleges of Veterinary Medicine is continued. Prof. Saltijeral from Mexico and Prof. Praks from Estonia describes the teaching program in Animal Hygiene in their Colleges.

The attention in animal production in the last years has very strongly focused on the improvement of the quality of the product. The consumer and the society ask more and more for mechanisms to assure high product quality, with no risks to human health and produced from animals with good health and welfare. To assure this quality it is necessary to set up ***Integrated Quality Assurance and Control Systems.*** *The role of Animal Hygiene in this IQC-systems is crucial. That is the reason, that the Xth Congress on Animal Hygiene in Maastricht starts with a plenary meeting with invited key-note speakers about IQC in the morning of the first day and 3 parallel sessions about IQC in the different species in the afternoon.*

Animal Hygiene: the key-stone to health and welfare in animal production.

Animal welfare is obtained when there is a homeostatic balance between the animals' environment and the adaptive capacity of the animals. As soon as the threshold of this adaptive capacity will be crossed over, the environment will be experienced by the animal as continuing stress and can lead to poor welfare, decrease in resistance and at the end to disturbed health and poor production.

In practice animal health is the balance between the infection pressure of pathogens in the environment and the resistance of the animal. During the existence of the ISAH there has been an enormous increase in animal production in several parts of the world. After entering of pathogens in such areas it is very easy for them to spread and persist in the animal population. This has resulted in a situation in which a lot of pathogens continually occur. The size of the farming operations and the often small distance between these operations make it very difficult to eliminate most of the disease germs out of the populations. This situation has lead to a health and welfare control policy, based on two different traces: the *safeguarding strategy* and the *controlling strategy.*

In the *safeguarding strategy* the goal is to give guarantees about the absence of specific diseases germs in the animal population. Effective eradication programs have to be developed to eradicate the diseases and then monitoring and surveillance programs have to be executed to control the safeguarding status. In all cases the hygienic status of the herds in the population to prevent against disease entrance and spread of disease germs is very important.

In the *controlling strategy* the presence of the potential pathogens is accepted. Optimal conditions of the environment of the animals and expert management of the herds are necessary to prevent against (sub) clinical disease outbreaks and disturbance of animal welfare. Good management of wastes of animal production is necessary to prevent against human health risks, environmental damage and undesirable burden of the society.
So in both strategies animal hygiene plays an important role in the development and the execution of the strategy. Scientists in Animal Hygiene have the responsibility to make as much as possible efforts to support both strategies with the specific knowledge in there field.

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Dear members. Since our last newsletter we had the 11th "in between symposium" organised by Prof. Dr. Marco Amon in Postojna, Slovenia. The symposium was titled: "Environmental protection and animal welfare". In this issue you can find an extended report of this symposium by Prof. Amon. In the symposium we had an interesting discussion in a round table about "the future development of animal, environmental hygiene and animal welfare". It was concluded that the separate field of animal hygiene is still valid, but that there is a need for intensive co-operation between animal hygienists and other disciplines, especially ethology, economics and epidemiolgy in research and education.
Most of these items are incorporated in our Xth International Congress on Animal Hygiene from 2-6 July 2000 in Maastricht, The Netherlands. I hope, that all of you will have the opportunity to participate and that I will see all of you in Maastricht.

Martin Tielen
President of the ISAH

Teaching Animal Hygiene

Teaching Animal Hygiene at the Autonomous Metropolitan University (Mexico City) Department of Agricultural and Animal Production

By Jorge Saltijeral[1] , Gustavo Ruiz and Alejandro Cordova

1. History about University and Department

With a young academic tradition formed over a 25 -year period our House of Learning is already considered one of Mexico's strongest university communities. The Universidad Autonoma Metropolitana (UAM) has three academic units or campuses: Azcapotzalco (UAM-A), Iztapalapa (UAM-I) and Xochimilco (UAM-X).

The academic organization of the UAM is based on an innovative educational model known as the Departmental Model. The model started in 1974 as an alternative to the traditional educational models in effect in the country at that time. The existing models were essentially made up of schools and faculties. The Departmental model makes it possible for tasks associated with teaching, research and cultural preservation and diffusion to be carried out in a balanced, integrated manner. It also favors the natural organization of multidisciplinary research groups to tackle problems with a high degree of complexity. The principal components of the departmental model are The Division, the Department and the Research Area.

There are three Divisions in UAM-X: Social Sciences and Humanities, Design Arts and Sciences and Biological Sciences and Health. The Department of Agricultural and Animal Production is part of the last Division and has three research areas, two bachelor degrees and two postgraduate programs.

ORGANIZATION OF DEPARTMENT OF AGRICULTURAL AND ANIMAL PRODUCTION. UAM-X.

Research Areas	Environment of the agricultural systems
	Ecological development of animal production
	Conservation and commercialization of agricultural livestock products
Bachelor Degrees	Agronomy
	Veterinary Medicine and Zootechnics
Post-graduate Program	Masters in Animal and Agricultural Production
	Doctorate in Biological Sciences

UAM-X operates under an educational model know as The Modular System. This educational model is based on the cognition's theory of Jean Piaget. The model also incorporated some aspects of the social and cultural approach of Vigotsky. The theoretical

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Keywords: Animal Hygiene, Mexico

bases of Bleger's group conduction are also part of this pedagogical model. The model uses following strategies: the selecting actual problems, applying an interdisciplinary approach in all selected problems to understand real problems, using Systems Theory, consider the student's background (psichopedagogy development, social origin,) and to promote the student's selfsteam and the contribution of the research results to the community.

There has been vigorous and continuous debate concerning curriculum reform within the universities and particularly in Veterinary Schools .At the UAM-X the role of higher education was redefined with the purpose to teach real problems.

Besides UAM-X there are six more schools with modular system (Guerrero, Tabasco, Michoacán, Yucatán, Durango y Nayarit). Two schools have mixed program (Chiapas and Sinaloa). In Latin America there is one veterinary school with modular system at Universidad de Loja (Ecuador)

2. Animal Hygiene Modular System at UAM-X.

The teaching system is sustained by the use of problems called "objects of transformation". Each career has 4 years program in twelve modules. The educational proposal at UAM-X has the following objectives for the students:

- Capability of identifying problems linked to the career and problem solving.
- Ability to integrate different disciplines in order to define a problem
- Aptitude for identification, handling, interpretation, correlation and application of the information.

The curriculum of Veterinary Medicine is orientated towards animal production divided in 12 modules. The time in each module is a quarter. Each module consists of 40 hours per week during twelve weeks. The activity of each module includes classroom hours, laboratory, procedures, and farm practices and library time.

The first module is *Knowledge and Society* in which the students learn the scientific method and the relationship between Science and Society. The next two modules of the Division program are *Fundamentals Cellular Process* and *Energy and Consumption of Fundamental Substances*. After completing the first three modules the students continue studying nine more modules required in the career program. Theses nine modules are organized in the following three phases:

CAREER MODULES

PHASES	Modules	Time weeks dedicated to Animal Hygiene
2nd year Principles Of Animal Production	The productive animal and the environment.	3
	Forage resources.	1
	New protein sources and by-products from vegetal and animal origin.	1
3rd year Balance of Feed Nutrients	Ruminants	1
	Monogastrics	1.5
	Poultry	1.5
4th year Rational husbandry	Mammals reproduction and artificial Insemination.	2
	Meat Production	2
	Milk Production	2.5

3. Definition of Animal hygiene from the teaching standpoint

In Mexico the word "Animal Hygiene" is not common. Veterinary Hygiene is most commonly know term. Animal Hygiene is an interdisciplinary science and includes the interactions among the environmental abiotic and biotic factors and domestic animals for food production. Animal Hygiene prevents infections, parasitic, nutritional and non infectious diseases. It also organizes the Preventive Veterinary procedures. The economic impact of the diseases is another area of studying. Animal Hygiene is the linkage between Animal Husbandry and Veterinary Medicine. Animal Hygiene is based on knowledge and respect to environment to benefit the health and welfare individual or group of animals.

4. Instruction purposes

The teaching of Animal Hygiene to indicate the importance of the knowledge of rural and urban environment is emphasized so that students improve their professional practice in the future with more respect to the nature and

the environment. This concept is known as Environmental Education.

The focuses of teaching Animal Hygiene is included in curriculum as a global understanding of the relationship between Veterinary Medicine and Environment. The global understanding is achieved by using Social and Biological Sciences.

The learning process is based on the incorporation of real problems. It is also important to teach and to learn alternative methods to control infectious diseases in animals. Other aspect during teaching is to find ways to reduce the use of antibiotics for disease control without affecting adversely the welfare of animals. Nowadays a group of teachers is working in a new program with more emphasis on medical aspects and Animal Hygiene.

5. Contents of Animal Hygiene training

Animal Hygiene is included in the nine modules and the students can learn theoretical aspects and apply them in a farm where they stay during each module.

Module 4. - *The productive animal and the environment.* Animal hygiene is one of the important parts of the module and therefore students spend most of their time learning this area. In this module the students learn to evaluate and propose corrective actions on handling and sanitary and management procedures at the farms. In this module the knowledge of Animal Hygiene helps to understand the basic principles of adaptation and stress during housing. Additional subjects in this module are Environmental Physiology and the effect of animal production on the environment.

Modules 5 and 6. - *Forage resources* and *New protein sources and by-products from vegetal and animal origin*. In these two modules the students learn all aspects of feed hygiene, relations between plant production and animal health.

Modules 7, 8, and 9. - *Ruminants, Monogastrics* and *Poultry*. In this three modules the students study management technologies of goat, sheep, cattle, swine and poultry production. Are also studied Animal housing systems and the effects of housing and feeding on the biological, reproduction and production values of the animals.

In the *Monogastrics* module students study hygiene of fattening and multifactorial disorders of pigs. In *Poultry* module students learn the factors affecting hatching, management and prevention diseases of the domestic hen. In *Ruminants* module students study digestive and hygiene aspects of ruminants and health breeding

Module 10. - *Mammals reproduction and artificial insemination*. This module includes reproductive procedures and also the sanitary aspects of birth and nursing.

Module 11. - *Meat Production*. All the sanitary aspects of beef breeding, slaughter and the sanitary handling of meat and meat by-products are studied in this module. They also study management technologies of meat cattle and animal hygienic aspects of beef cattle production.

Module 12. - *Milk Production*. The students learn about milking hygiene and sanitary handling of milk, milk quality and environment, management technologies of milk production and hygiene of calf raising.

6. Desirable changes and the guture

The noble purposes of Veterinary Medicine are to serve society and improve human well being.

Three actions are necessary for the future: a critical review of the Veterinary Medicine curriculum, the review of the teaching of Veterinary Medicine and the role of veterinarians to ensure that Veterinary medicine is congruent and relevant to social needs and that it responses to the contemporary changes.

The traditional role of the animal farm veterinarian has changed because the populations are demanding more safe food produced. The food production requires special attention to Animal health and welfare and protection to the environment. The Veterinarians have to accept that they are part of the livestock industry and they have to play an important role in public health.

The Education Veterinary must improve the living conditions of 70% of the population in Latin America who live on poverty. This can be accomplished by educating more and well-prepared students, thus producing more and wholesome food products.

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Keywords: Animal Hygiene, Mexico

Teaching Animal Hygiene at the Estonian University of Agriculture (Tartu, Estonia)

By J. PRAKS, Prof. of Animal Hygiene
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Animal Hygiene has been taught to third year students of veterinary medicine as an independent subject from the foundation of the Veterinary School in Tartu 151 years ago, usually 2-5 hours per week during the Autumn semester. The special department entitled Animal Hygiene was first established in 1917. At the beginning of the 1990s, in connection with the restoration of the independence of the Estonian Republic, great changes have taken place in our educational policy, also in Animal Hygiene. In 1995 the Chair of Animal Hygiene was formed as a special structural unit. Our teaching program for Animal Hygiene was modified and harmonized with the programs used in other European countries. We obtained an abundance of information from our Swedish and Finnish colleagues. We do however, maintain our traditions and seriously consider the current possibilities and practical needs of our animal husbandry.

There are two instructors (1 professor, 1 lecturer) in the Chair of Animal Hygiene, who are also responsible for teaching Animal Behaviour and Milk Hygiene.

Animal Hygiene is the branch of veterinary science dealing with the investigation of the following problems :

1. the influence of environmental factors (climate, water, soil, feeds etc.) on the organism of animals, their health and productivity ;
2. measures to prevent the formation and spread of diseases ;
3. the keeping, feeding and care conditions which correspond to species-specific peculiarities, age and the purpose of keeping animals and guarantee the welfare and high productivity of animals.

The methods applied in Animal Hygiene also protect the environment from pollution and safeguard public health.

Aim of instruction

Animal Hygiene is a veterinary science with a practical inclination, combining knowledge in the basic veterinary disciplines (anatomy, physiology, ethology, immunology etc.) with the clinical disciplines and animal husbandry. After passing the course students should be well informed about the following matters :

1. the needs of animals as regards producing environment ;
2. housing and management systems for farm animals ;
3. the elucidation of risk factors in the producing environment and their role in reducing production and in the appearance of diseases in the herd and economic disadvantages ;
4. the planning of specific preventive actions for improving the health situation in the herd ;
5. the avoidance of environment pollution with wastes from animal husbandry ;
6. the problems of animal welfare ;
7. the ethical responsibility towards animals.

Position of Animal Hygiene in training

The general studies in Animal Hygiene consist of 6 credits. 1 credit unit (CU) refers to an input of approximately 40 hours of work required from the students, of which 24 h is for auditory (lectures and practical exercises) and 16 h for independent work.

The topic of Animal Hygiene is divided into two parts :

1. Basic Animal Hygiene for third-year students (5 CU) in the Autumn term (1st and 2nd cycles).
2. Clinical Animal Hygiene (Herd Health) for fifth-year students (1CU) in the Autumn term (2nd cycle).

Basic Animal Hygiene

Before starting their studies in Animal Hygiene, the students must pass the following subjects (Table 1):

Table 1.
Prerequisites for basic Animal Hygiene

Subject	Amount (CU)	Study year
1. Animal Protection and Professional Ethics. The general problems of animal welfare, European legislation for animal protection and professional ethics are taught.	1	1.
2. Botany and the Fundamentals of Agronomy. Basic knowledge of fodder plant cultivation and production.	3	1.
3. Special Course of Different Species of Farm Livestock. Cattle, swine, sheep, horse and poultry farming, their keeping technologies, animal production and herd planning.	3	1.
4. Fundamental Course in Animal Nutrition. The amounts of essential nutrients in feedstuffs, their metabolism, feeding standards and feeding rations.	4	2.
5. Ecology and Environmental Protection. The ecosystems, ecological balance, problems of ecological consciousness, regional and international legislation for environment protection.	3	2.
Subjects of Veterinary Science		
1. Anatomy	9	2.
2. Physiology	5	2.
3. Ethology of Domestic Animals	1	2.
4. Immunology	2	2.
5. Microbiology and Virology	8	2.-3.
6. Veterinary Genetics	2	3.

Theoretical and practical lectures

The course includes 64 hours of lectures and 48 hours of laboratory work and visits to farms. During the studies, students compose a written report in which they make a detailed analysis of the hygienic situation in one functioning farm. At the end of the course an exam (oral or written) is arranged to verify the students' acquired knowledge.

The curriculum of lectures covers the following topics :

- Animal and environment. Thermal balance and the thermoregulation of animals.
- Air temperature, humidity, velocity and atmospheric pressure as environmental factors and their effect on the organism of animals.
- Dust and microorganisms in the air and their effect on the organism of animals.
- The effect of solar radiation, light and noise on the organism of animals.
- Harmful gases in the air and their effect on animal health.
- The physical, chemical and biological characteristics of drinking water and the importance of quality to the health of animals.
- The physical, chemical and biological characteristics of soil and the effect of animal production on the environment.
- Feed hygiene, avoidance of diseases related to feed.
- The hygiene of buildings for animal housing and building materials.
- Ventilation systems for animal buildings.
- Bedding materials and manure handling, veterinary and public health aspects.
- Cattle keeping hygiene (construction of cow houses, keeping technologies, hygiene of different age groups etc.).
- Swine keeping hygiene (construction of swine houses, keeping technologies, hygiene of different age groups etc.).
- Poultry keeping hygiene (construction of chicken coops houses, keeping technologies, hygiene of different age groups etc.).
- Horse and sheep keeping hygiene (construction of horse barns, keeping technologies, hygiene of different age groups etc.).
- Hygiene in pastures and during transport.

Practical exercises include laboratory work for taking feed and water samples, the determination of their quality using organoleptic, physical, chemical and microbiological indicators. The amount of ventilation and thermal balance for particular animal buildings are calculated. Three visits to different farms (dairy cattle, swine, poultry, horse) in order to practice the assessment of physical characteristics of microclimate and evaluate the buildings and keeping technologies through the aspect of animal hygiene and welfare are made. Visits to public

health and veterinary laboratories are made to develop familiarity with sophisticated and modern apparatus for chemical and bacteriological investigations. Videos from different management systems, as well as on the transport and handling of animals, are included in the schedule of practical exercises. Our students can also deal with problems of Animal Hygiene during their Summer field practice in farms after 1st (2 CU) and 2nd (2 CU) study years.

Clinical Animal Hygiene (Herd Health)

This course connects the knowledge of fifth-year students in Animal Hygiene and welfare with important veterinary subjects such as a course on mastitis, noninfectious internal diseases, parasitology and parasitic diseases, veterinary organization and jurisprudence etc. The course includes 8 hours of lectures, 16 hours of practical exercises and 16 hours of independent work.

The curriculum of lectures covers the following topics :

- Animal and herd health. Common principles of herd health monitoring and analysis.
- Multifactorial diseases. Production environment factors as risk factors for diseases.
- The health-stress-disease connection. The assessment of stress and welfare.
- General principles for guarantee good animal welfare and herd health situation in farms.

The topics of practical exercises are the following :

- Becoming acquainted with the concrete project for a dairy shed and its evaluation from the point of view of animal welfare and herd health. Prognostication of the occurrence of multifactorial diseases, the planning of preventive measures to avoid them.
- Visits to dairy farms and one swine farm to examine keeping and feeding conditions, elucidate the risk factors of diseases, compare the predicted occurrence of diseases with real data and plan measures for the improvement of the health situation of the herd.

The students shall present the results of their investigations (written report) to the teacher.

The course ends with a preliminary exam in which the written report is also discussed.

Relevant changes

The following changes in the teaching of Animal Hygiene are foreseen in the near future :

- The improvement of collaboration, especially with teachers from other faculties teaching veterinary students (animal management and nutrition, ecology and environment protection, botany etc.), in order to emphasize the importance of animal hygiene and welfare in the management of farm animals.
- Increased attention to the economical problems of animal production in connection with herd health and welfare, especially after the stabilization of our animal products market.
- The increasing of the number of different textbooks in our library in Estonian and other languages to stimulate students to work more independently.
- The continuing modernization of teaching schedules.

11th "In between" Symposium in Postojna Slovenia
Environmental Protection and Animal Welfare

By Prof. Dr. M. Amon
Country representative ISAH, Slovenia

With the support of ISAH, the 11th "in between" Symposium of ISAH was held in Postojna, Slovenia on April 22nd - 25th 1999. The working title of the symposium was: "Environmental Protection and Animal Welfare". Traditionally, ISAH organises an International Congress every 3 years. Between the Congresses "in between" symposia in different countries are organised. The last congress of ISAH was held in the year 1997 in Helsinki and the next will be in Maastricht, the Netherlands 2. - 6. July 2000. The Slovenian Veterinary Association, Department of Environmental Hygiene, organised under the support of ISAH, the "11th in between Symposium, April 22. -25. 1999 in the beautiful carst region Postojna, which is world wide known by the cave of Postojna.

The aim of the symposium was to show and promote the knowledge in the field of Animal Hygiene and Animal Welfare and to contribute to the scientific and practical knowledge to environmental health, ethology and animal welfare in the herd programmes.

We would like to inform the members of ISAH about the subjects dealt with in the in-between symposium. There were 67 papers and posters presented in the proceedings of the meeting.

7 sessions were scheduled at the Conference :	
Session A	Animal wastes, hygiene of composting
Session B	Environmental animal health
Session C	Air pollution and odour
Session D	Animal welfare, stress, transportation
Session E	The prevention of food contamination
Session F	Animal health and biotechnology
Session G	Disinfection, disinfestation

There were 90 participants present; from the Netherlands, Germany, Poland, Italy, Slovakia, Croatia and Slovenia.

Unfortunately, due to the beginning of the war in Kosovo, some participants from Eastern Europe such as Russia, Latvia, Ukraina, White Russia canceled their participation in the conference.

Among the participants and speakers, besides the veterinarians and zootechnicians, there were people from the human medicine present. All participants received the book of proceedings (67 abstracts). The whole proceedings will be printed in autumn 1999.

ISAH delegated prof. dr. R. Böhm from University Hohenheim, Germany as a member of the organising and scientific comittee. The conference emphasised on the problems of animal wastes and hygiene of composting biodegradable components as a risk for environmental pollution and animal health. Beside that, we had discussions about air pollution, monitoring, measurement of malodours, olfactometry.

An emphasis was given to transportation of animals in connection with welfare, meat quality and stress problems and problems of stress prevention.

Some papers were showing the new technologies which are oriented on better wellbeing and welfare.

On the round table discussion "The future developement of animal environmental hygiene and animal welfare" it was discussed about the content of future development of animal hygiene to clearly define animal hygiene.

It was recommended to give more emphasis on relations between animal production and environment. The same situation is in the research field that every college should integrate into their curriculum Ethology with animal welfare.

Animal hygiene, environmental hygiene and animal welfare should be thought as special discipline.

On the third day of the conference, three excursions were organised visiting the cave of Postojna, castle Predjamski grad, and the beautiful sea side resort town ramed Piran. At the beginning of the symposium, a society (WARD, World Association of Representatives for Descendants) was founded. The constitution of WARD tells us: Future generations will be able to preserve and consume only that which we now safe for them. This association was founded by the Japanese Hideo Watanebe and includes already 27 member countries.

At the conference, were present the president of ISAH prof. dr. M. Tielen with his wife and member of the organising comittee for the congress in Maastricht 2000 dr. Paul von Gulick with his wife. The "oldies" , the old friends and the oldest members of the ISAH participated on the evening on 24 th of April in Lions club Postojna.

We hope that transmission of the idea and knowledge of our in between symposium has contributed to more uniform viewing of the animal hygiene and animal welfare.

The in-between symposium was dedicated to the memory of prof. dr. S. Valentineie who was the founder of animal hygiene at the Veterinary faculty in Ljubljana.

Xth International Congress on Animal Hygiene
2-6 July, Maastricht, the Netherlands

The International Society for Animal Hygiene organises every three year an International Congress on Animal Hygiene. This triennial congress has to be organised by the president of the ISAH in his country.

Therefore the Xth International Congress on Animal Hygiene will be organised in the Netherlands.

The organising committee has decided to organise the congress from 2-6 July in Maastricht, the Netherlands.

Maastricht is located in the very south of the Netherlands just at the border with Belgium and Germany. It is a very convenient ancient city with a rich history. In former times it belonged to different countries, bischoprics and duchesses and was often besieged or occupied by foreign armies. You still can find back all the memories to this old history in the churches, castles and buildings all over the city. Maastricht has a very up to date conference centre, the Maastricht Exhibition and Conference Centre (MECC), with all facilities to organise a scientific congress. The prices for hotel accommodations in Maastricht are reasonable in comparison to other cities in the Netherlands and Europe. Maastricht is located in the centre of Europe, what it makes easy for scientists and practitioners in the surrounding countries to participate in the congress. So several reasons for the organising committee to choice for Maastricht..

The organisation of the congress makes good progress. In the last month we did send out already about 1500 second announcements with call for abstracts. In this second announcement a preliminary scientific program is included.

The congress will be opened in an opening ceremony by the Minister of Agricultural, Nature Management and Fisheries on Sunday evening , 2nd July. After this opening ceremony there will be a get together party to meet each other.

The scientific program will start every morning with a plenary meeting for all congress participants where well known scientific experts will present key-note lectures on the main topics. After coffee break parallel sessions on the different topics will be held for the rest of the day.

Under the device: *"Animal Hygiene: The Key to Healthy Animal Production in an Optimal Environment"*
seven different main topics are selected :

A. Quality Control Systems(IQC) in Animal Production.
B. Safeguarding Strategies based on Animal Hygiene.
C. Developments in Animal Housing and Management.
D. Adaptive Capacity and Environmental Stress.
E. Animal Hygiene as the bases for Animal Welfare.
F. Environmental Pollution and Waste Management.
G. Animal Hygiene in Companion Animals

The environment of the animals plays an important role in all these topics. The science of animal hygiene has to contribute to these topics by research , developments and education about the interactions between the animals and the environment. They will not only focus on the impact of the environment in the animal houses on the health and welfare of the animals, but on the relationship between animal production and the environmental pollution and human health risks too.

The actual scientific program will be the most important reason for the scientists and practitioners to participate in the congress. They have the opportunity to present the last results of their own research or to gain new knowledge about results and developments in animal hygiene in about 20 meetings and scientific sessions. There is full space for exchange of knowledge and experiences in that field too.

Beside of that the participants of the congress will be offered an interesting social program. There will be organised several excursions tours around the main topics of the congress on the last day. These excursion tours will be finalised in a whirling welfare party in the centre of Maastricht.

For the accompanying persons we have organised a program in and surrounding Maastricht were they can see and learn about the famous marl caves, the old city, the castles and the customs of their inhabitants.
The Xth congress will be organised by the ISAH. This means, that the congress will be used to discuss the activities of the Society too. Therefore we will have meetings of the Executive Board, a meeting of the Extended Executive Board (the country representatives) and a General Assembly at the end of the congress were the members of the ISAH have to decide about the proposals and activities.

So I hope, that we will meet all of you in the very special year 2000 in Maastricht to start the new millennium with a successful Xth Congress on Animal Hygiene.

Martin Tielen, President

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You can find the information Internet: http://www.knmvd.nl/isah.htm

50th Annual Meeting of the European Association for Animal Production (EAAP) – Zurich – August 22-26, 1999

The 50th annual meeting of EAAP was held this year in Zurich. Nearly nine hundreds people coming from 57 countries attended the meeting. As it could be expected most of attendants came from European countries. Thirty people came from the USA. The venue was the Federal University of Polytechnics (ETH) located down town Zurich. The organising committee was chaired by prof. N. KUNZI from the animal science institute (within ETH, Zurich).

The scientific programme covered the different sides of animal science. The geneticians focused on the new technologies based on the molecular biology and on their utilisation in animal breeding. The manipulations of the genomes are a matter of intensive research. New technologies like microarrays are creating opportunities for functional genomics studies. Functional genomics aims to understand how the instructions contained in the DNA determine the phenotypes and the functions. However the geneticians did not exclude their more conventional topics and several papers dealt with statistics and their use in animal breeding.

One of the scientific sessions driven by the nutrition commission concerned the use of grass and forages for milk and beef production. They had another one dealing with the combined role of genetics and nutrition in the quality of meat and fat.

The management and health study commission whose missions is certainly the closest to the scope of ISAH, had its first session devoted to welfare legislation and consumer acceptance. The consumer's attitude and the current retailer's pressure are likely to induce changing in animal housing and management. A considerable number of questions remain. One of these is : will these changings wished by the public who is urbanised and largely unaware of farm animal keeping provide in the reality our animals with a better health and welfare ? What will be the consequences on the safety of animal products for human ? What will be the costs ? What will be the consequences on international trade in an open market ? In this talk, Prof. E. Von Borell (Univ. Halle, Germany) outlined that welfare assessment needs integrative studies. It should not be restricted to behaviour and in this specific field he outlined the need for careful interpretation of the results obtained from experimental trials.

In Zürich Management and Health Study Commission co-organised a session with OIE (Office International des Epizooties). The title was « reproduction technologies and risks of disease transmission ». An outstanding programme could be built with speakers coming from different countries including USA. Researchers in veterinary science told especially about embryo transfer and artificial insemination. Embryo transfer is taking a growing importance in ruminants. It came out that Embryo Transfer and Artificial insemination are reliable methods with respect to disease spreading provided the animals themselves (the donors) are clean (ie non infected) and that the ethical and technical excellence of those performing the procedures can be assured.

In the pig, embryo transfer is currently still laborious. The question of using embryo transfer to obtain SPF herds from animals of high breeding value but currently infected was raised. At present time the answer cannot be an unique one and it seems to depend on the animal species and on the infectious agents involved. The main papers of the session will be published in a special issue of Livest. Prod. Sci. Another session dealt with the physiology of suboptimal growth. The different sides of the problem were reviewed. The role of cytokines and of different nitrogen oxides was outlined. Beside that topic, the physiologists, had an extensive part of their contributions related to cell division and protein synthesis for growth and developments in newborn animals.

More applied science was presented in a session dedicated to electronic identification in farm animals. The most important part was

filled by communications given by scientists collectively involved in an EU project named IDEA. The goal is to look at the technical possibilities of identifying farm animals (ruminants at the first step) in a standard and reliable way through out EU. Transponder devices have been designed and are currently the basis for animal Radio Frequency Identification (RFID). Three types of devices are tested in a large number of animals : ruminal bolus, eartag and injectable transponders. The preliminary results were presented. In veal calves the use of a bolus positioned in the rumen looks promising. In cattle the preliminary results also seem in favour of this system (less than 0,1% losses).The possibility to use injectable transponders in horses was presented. If a special care is taken (local anaesthesia and strict hygiene procedure) the risk of infection is low and the system can work properly.

At the free communication session several subjects of interest were presented. PMWS (Postweaning Multisystemic Wasting Syndrome), new disease condition in the pig was presented. The syndrome has already been described in several countries (Canada, USA, Spain, and France...). It affects pigs 2-3 months old and wasting which is often fatal is the main feature. The lymphoid tissues are a main target of the pathological process. A porcine Circovirus (PCV2) is believed to be involved. However the environmental conditions are playing an important role in disease expression on the farms. Other papers related to the pig were presented and these were mainly related to behavioural aspects either on the farm on at the slaughterhouse. In this session, the papers related to cattle were about health and survival of calves and on health control in dairy farms.

Beside those already mentioned, the major items, which were treated, were the followings :

CATTLE

- ⇨ future role of dual-purpose cattle
- ⇨ The management tools to improve the physical and financial performance of livestock farms.

SHEEP AND GOATS

- ⇨ sheep and goat production in wet mountain areas
- ⇨ feeding of dairy goats under intensive management
- ⇨ genetic resistance to disease and parasites. Alternatives to chemotherapy
- ⇨ Economic, genetic and management aspects of fine fibre production

PIGS

- ⇨ The role of dietary fibre in pig production
- ⇨ The quality of meat and fat as affected by genetics and nutrition
- ⇨ Feeding and management of the weaned pig
- ⇨ Future strategies with regard to the use feed without antibiotic feed additives

HORSES

- ⇨ New developments in reproduction

Obviously this report cannot be exhaustive and only some aspects have been mentioned here. A book of abstract* was given to the participants. It includes 715 abstracts (1765 authors). Finally I have to mention the perfect organisation of the Congress. The next EAAP meeting is scheduled for August 2000 in the Hague (the Netherlands). The title of the sessions can be obtained either from the organisers** or from me.

Dr F. MADEC
President of Management
And Health Study Commission

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* Book of abstracts of the 50th annual meeting of the European Asso. For Animal Production N°5, 1999.
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International Congress on Regulations in Animal Production in Europe. WIESBADEN, Germany 9-12 May 1999

A book of abstracts is available from the organising committee :
Price : 44 DM. To order the proceedings :
Ref. of the book :
Arbeitspapier 270
"Regulation of animal production in Europe"
International Congress in Wiesbaden
May 9 – 12, 1999
Address :
KTBL – Schriften – Vertrieb im Landwirstchaft sverlag GmbH
48084 MUNSTER GERMANY

The congress was organized by the KTBL (Kuratorium für Technick und Bauwesen in der Landwirtschaft). The KTBL is an association of scientists from the different sectors of agriculture in Germany and members of the German administration. The purpose of the congress was to bring experts together in order to exchange current knowledge not only concerning regulations but also scientific issues related to animal welfare and environment protection. 175 participants representing 23 countries attended the congress in Wiesbaden, which is a pleasant city in the RHINE Valley. After an initial plenary introduction the major topics were discussed in different sections. A representative of the German Ministry of Agriculture and Dr. H. Van der Weghe, member of KTBL's board of directors gave a warm welcome to participants. M. CHECCI LANG from DG VI in Brussels then focussed in his talk on the growing importance of Animal Welfare and of Environment protection aspects in Europe. He stated that these are new issues which were not explicitly mentioned in the Rome treaty, starting point of the EU. He also mentioned the debate currently taking place in the EU Commission as to whether or not they should be included in the agenda of the next round of the WTO (World Trade Organisation). He added that, for the large majority of countries in the world, the question of Animal Welfare is not of major importance.. This lecture was followed by another on « private profit and public interest in a market economy » (Dr. J. Mc. INERNEY from EXETER, UK). According to this author, regulations must not take over the market. However there are situations where the legislator needs to intervene (when public interest is threatened). Market failures in animal production are commonly related to animal health, food safety, animal welfare, environment and technologies. The increasing role was described of powerful food retailers in the economic chain who define what they believe the consumer wants and impose the required conditions on the farmers. As regards the regulation of animal welfare, a lecture was devoted to the different steps that finally lead to a EU directive. Other subjects were also considered during this plenary part of the Congress.

In two specific sessions dealing with Animal Welfare, several presentations were oriented towards the national situations regarding regulation. Different EU countries presented papers related mainly to pig and poultry productions. Other presentations were more related to welfare assessment or to the perception of Animal Welfare by the public.

Water and soil pollution was another main topic of the congress. Again the situation in different countries especially the measures taken for pollution control were displayed. Air pollution, besides that of water and soil, was another important subject of interest. Prof. Hartung from Germany gave the main paper on airborne emissions from animal production and their impact on environment and man. Most of the following papers concerned ammonia emissions. It is agreed that more than 70 % of ammonia emissions are derived from animal production. To achieve a reduction in ammonia emission in the air a combination of measures has to be implemented : low emission housing systems, manure treatment, code of agriculture practice...

Farm planning was also an item on the congress agenda. Several papers were presented and dealt with different aspects including the sensitive one of neighbourhood protection.

The final plenary session which was mainly devoted to bioethics and economics was especially interesting. The question of whether an ethically defensible animal production system can be successfully combined with the free market, was raised. On the same line, the major point of the impact of regulation on international competitiveness was examined. Finally J. HODGES from EAAP (European Association for Animal Production) spoke about livestock, environment and quality of life.

Apart from the excellent quality of the presentations, I must underline the perfect organisation of the congress and the warm atmosphere between participants. Most of the lectures were followed by lively debates, thus attesting the strong interest of the participants. As expected, the congress really was an occasion for people of different countries, involved in different aspects of animal production, to meet and discuss subjects of major importance for the future of agriculture and more generally for land utilisation and environment protection.

Dr F. MADEC
Secretary ISAH

33th Congress of the ISAE Lillehammer, Norway

The 33rd Congress of the International Society of Applied Ethology (ISAE) was held in Lillehammer, Norway, 17th-21st August 1999. The congress was organised by Bjarne O. Braastad and Knut E. Boe, theAgricultural University of Norway. The congress was attended by 248 scientists from all over the world. The traditional D.G.M. Wood-Gush Memorial Lecture was given by Prof. Paul H. Hemsworth, Australia, on"Human-Animal Interactions in Livestock production". Three other plenary lectures were held: Jaap Koolhaas, Univ. of Groningen on "Aggression and behavioural plasticity", Berry Spruijt, Univ. Of Utrecht, on "How is welfare represented in the brain?", and Bjoern Forkman, Univ. of Stockholm, on "Incentive: the neglected facet of motivation". In addition, 61 oral presentations were given in two parallel sessions and there were 102 posters. At this congress some priority was given to contributions by PhD students and post doc's. A prize was awarded to the best oral and poster contributions by PhD students, The next ISAE congress will be held in Florianopolis, Brasil, 11.-14. October 2000. There will be specific sessions on "Promoting animal welfare in husbandry systems" and "Domestication and ethology of wild animals". Free papers will include behavioural studies on farm, companion, zoo and laboratory animals.

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Report on the "3rd International Symposium on the Epidemiology and Control of *Salmonella* in Pork"

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Reasons for research on the epidemiology and control of *Salmonella* in pork

The increase of free trade and decreasing consumer trust in the safety of food of animal origin have resulted, apart from various other changes in the swine industry, in a growing interest in developing control programs for an efficient reduction of *Salmonella* in the pork chain including pre-harvest measures at farm level. Several specific reasons heighten the interest in *Salmonella* control in pork production.

1) Pork is generally recognized as an important source of human salmonelloses.

2) The successful *Salmonella* control programs in Sweden, Finland and Norway during the past three to four decades (herd/flock prevalence lower than 1%), and the recently launched national Salmonella control program in the Danish pork industry, create an international "market pressure" that even influences domestic markets via increasing public discussion of food safety concerns.

3) The successful reduction of *Salmonella* in pork, even the implementation of any control program, is a huge opportunity for improving both the consumers' trust in pork and the market accessibility, especially to the international market.

Following the first two international symposia on *Salmonella* in pork (1996 in Ames, USA and 1997 in Copenhagen, Denmark), the "3rd International Symposium on the Epidemiology and Control of *Salmonella* in Pork" was held from August 5-7, 1999, in Washington, D.C. The numbers of participants and papers presented at the three meetings demonstrate the increasing interest in this area: 50 participants from 2 countries (the U.S. and Denmark) discussed 35 papers in Ames; 95 participants from 12 countries discussed 73 papers in Copenhagen; and 130 participants from 14 countries discussed 100 papers in Washington, D.C.

The text that follows reflects updates to the current state of the knowledge on the pre-harvest aspects of *Salmonella* in pork, based, in large part, on information presented at the 3rd symposium.

Research areas that were dealt with at the 3rd International Symposium

Scientific session	Number of presentations
1. Detection / Host-Agent Interactions	25
2. Production Epidemiology	21
3. Human Health Implications	11
4. Economics and Policy	5
5. Antimicrobial Resistance	10
6. Post-harvest Epidemiology and Intervention	9
7. Production Intervention	11
8. Control Programs	14

Detection / Host-Agent Interaction

1) In spite of growing experience in interpreting the results of culturing for antigen detection and the results of using antibody-detecting ELISA tests, and in spite of growing experience in estimating herd and in-herd prevalence, there is no breakthrough in detection: culturing and ELISA tests are still the only "workable" tools, with culture results only being reliably valid in case of positive results and ELISA only being a diagnostic tool at herd level. There is still an urgent need for rapid detection methods.

2) In spite of encouraging new findings such as the role of adhesins and lymphokines as well as the effects of competitive flora on the colonization of *Salmonella* in the gut, there is no breakthrough in understanding the pathogenicity, the persistence and the tropism of the zoonotic *Salmonella* serovars (several of the non-species adapted serovars seem to have certain "preferences" where to multiply best).

Production Epidemiology

1) In contrast to the relatively "simple" infection pattern of the host-adapted *Salmonella* serovar *S. Choleraesuis*, the infection pattern of the zoonotic, non-species adapted *Salmonella* serovars is variable and complex. In-depth investigations of transmission and shedding of *Salmonella* in swine herds have revealed that the occurrence of these *Salmonella* serovars is dynamic. The prevalence patterns vary from farm to farm, from production group to production group and over time within groups.

2) There is growing knowledge on the role of animal movement, environmental contamination, the huge variety of sources of infection, the possible reservoirs and the daily working procedures for introducing *Salmonella* onto a swine farm and into a swine herd as well as for the perpetuation of the infection-contamination-infection cycle on farms that once became contaminated.

Human Health Implications

1) Apart from the contribution of *Salmonella* from pork to human infections, an important concern is the occurrence of DT 104 and other multi-resistant *Salmonella* strains. It is recommended to intensify the monitoring of the development of resistance through the National Antimicrobial Resistance Monitoring System - Enteric Bacteria (NARMS-EB), and to apply standardized molecular subtyping methods to human and veterinary isolates to use the existing and growing data base for analyzing trends and as early warning system.

2) Most conclusions on the role of *Salmonella* from pork are drawn from the serovar patterns of human cases on the one hand and the serovar patterns of animal strains from diagnostic laboratories, but more and more data show that the serovar patterns of isolates from slaughter hogs (healthy animals that enter the food chain) differ considerably from the isolates found in diagnostic laboratories (diseased and mostly treated animals that do not enter the food chain).

Economics and Policy

1) Some research teams have started to investigate into the costs of human illness due to *Salmonella*, the costs of on-farm *Salmonella* testing, and the consumer demand for certified safer pork.

2) More studies, preferably on an interdisciplinary basis, are needed, especially on the opportunities for "*Salmonella* controlled" pork in domestic and international markets.

3) Mechanisms for capturing added value and/or certifying special food safety characteristics are actively being developed.

Antimicrobial Resistance

1) The results of NARMS-EB and of ongoing research projects indicate: the concern with antimicrobial resistance in *Salmonella* from pork should not be underestimated: intensifying research and monitoring is highly recommendable.

2) The resistance patterns in diagnostic strains differ considerably from slaughter hog strains, which underlines the necessity to increase the national data base on *Salmonella* isolates that enter the food chain *(cf.: human health implications)*.

3) The prevalence of resistant strains can be associated with antimicrobial use, but can also be found in environmental samples from swine farms. In some cases this may have an obvious non-swine origin, e.g. strains from outside the buildings that have a wild bird origin. The source of these resistant strains may be the pigs themselves or may be maintained independently.

4) There is evidence that pig production is an important risk factor for the occurrence of resistant strains, there is also evidence that suggests that other ecological factors contribute to the spread of those organisms. The simple chain of causation such as: *Salmonella* strains resistant to drug A are necessarily "caused" by the use of drug A may be an oversimplification. Interdisciplinary and inter-institutional research and monitoring approaches are necessary to provide potential tools for controlling antimicrobial resistance in *Salmonella*.

Post-harvest Epidemiology and Intervention

There are very few data on the quantitative effect of pre-harvest *Salmonella* reduction on the post harvest *Salmonella* prevalence in pork. Longitudinal studies on the impact of on-farm salmonella reduction measures on the in-plant prevalence of Salmonella on carcasses and the plant environment should be encouraged.

Production Intervention

1) There is no breakthrough in terms of a "silver bullet" that solves the problem of *Salmonella* in pork, but there are many encouraging results on what may reasonably contribute to on-farm *Salmonella* reduction. Preliminary results presented at the symposium and elsewhere should lead to the development measures that, taken together, have the potential to reduce the Salmonella burden of swine farms. Measures showing some promise include: applying feeding and nutrition methods that reduce the multiplication of salmonella in swine (e.g. meal vs. pellets or liquid vs. dry feed), cleaning and disinfection (e.g. targeted cleaning and removal of potential reservoirs such as dust and spilled feed), targeted intensification of external and internal biosecurity measures (e.g. limited traffic of trucks and personnel, changing of clothes and boots, rodent control etc.), "*Salmonella* reducing" production procedures (e.g. one-way flow of personnel and animals, separation of swine herd from other livestock species etc.), potentially competitive exclusion flora, vaccination, probiotics and feed additives.

2) It seems to be necessary to develop rapid and economic methods to identify farm- specific *Salmonella* patterns to be able to choose from the above list of potential *Salmonella* reduction measures those that apply for the farm in question. In other words, farms need a "customized" *Salmonella* reduction plans dependent on the type of operation, the daily working procedures and the various sources of introducing and perpetuating *Salmonella*.

Control Programs

1) The Scandinavian countries set the stage and the pace of *Salmonella* control in livestock and food production. Although there are remarkable differences in the structure of swine production between various countries, and by far not all of the Scandinavian measures can be copied, it is important to exchange experiences and to keep the dialogue about *Salmonella* in pork alive.

2) The Danish attempt to "eradicate" DT 104 seems to be very ambitious, but needs to be observed.

3) The European monitoring (EU Reference Laboratory for the Epidemiology of Zoonoses in Berlin, Germany) and the Danish Zoonosis Center set the standard for monitoring Salmonella in livestock. Monitoring systems should try to use standardized methods that make international comparisons possible.

4) National programs seem to be limited to smaller countries. Apart from developing national standards for permanent *Salmonella* reduction programs, the future will also be developing and implementing customized *Salmonella* reduction programs for individual food production chains, where the emphasis is on the continuum from farm to table.

Overall conclusions from the 3rd International Symposium

I. Statements with general consensus that should be communicated to consumers

1) *Salmonella* in pork is not a new or emerging problem in the pork industry that is due to wrong-doing. In fact, indications are that *Salmonella* levels may be decreasing, overall. However, the recent increased concern about *Salmonella* reflects movement toward a higher level of practical, science-based safety and quality standards than we have held in the past. The food production chain is moving to a new, higher standard to provide an increased margin of safety to the public.

2) A *Salmonella* positive pig or herd does not imply that the pork itself will be *Salmonella* positive. However, *Salmonella* positive pigs sent to slaughter result in an increased risk of *Salmonella* contamination of edible tissue from

3) *Salmonella* positive gut contents and lymphoid tissues during slaughter and processing procedures.

4) The goal of our efforts is not the eradication of *Salmonella*, but the continuous reduction of the risk of carrying *Salmonella* into the food chain via slaughter animals.

II. Future perspectives for *Salmonella* in pork

1) There is no "silver bullet" for a single on-farm intervention that reliably reduces *Salmonella* in all farm settings.

2) There is growing knowledge for the development of a list of recommendations for *Salmonella* reduction at farm level. However, farms will need specific programs that are tailored to their "own" *Salmonella* pattern.

3) While the goal of *Salmonella* control programs is not eradication, on-farm *Salmonella* control is likely to become a major part of permanent quality assurance programs at farm level. This approach should help producers to produce for the market an attractive product, in which the consumer has trust.

Announcements

Call for news

Remind that the newsletter is used as a tool for informing the members on différent subjects related to animal hygiene. The letter is open for news coming from different countries. So please contact me and/or the members of the board if you have proposals.

Dr F. MADEC Secretary
f.madec@ploufragan.afssa.fr

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1 – European Symposium

Antibiotic resistance in Bacteria of Animal Origin
Monitoring strategies, recommendations, research, 29-30th November 1999, INSTITUT PASTEUR PARIS (France).
Informations :

Dr Pascal SANDERS
Tel. : + 33 2 99 94 78 76
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2 – EAAP 2 000

51st Annual meeting of the European Association for Animal Production.
The HAGUE (The Netherlands) – 21 – 24 August.

The different sides of Animal Science will be covered (Genetics physiology, Nutrition, Management and Health).

Informations :

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3 - An award for Prof Ingvar EKESBO

We could read in the Veterinary Record (August 21, 1999) that Prof I. EKESBO from Sweden, past president of ISAH, who did so much for ISAH and Animal Hygiene in general was made honorary associate of the Royal College of Veterinary Scineces in London (UK).

Sincere Congratulations !