Equator : informatieblad over veterinaire aspecten van ontwikkelingssamenwerking

EQUATOR

NEWSLETTER ON VETERINARY ASPECTS OF INTERNATIONAL DEVELOPMENT COOPERATION

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FROM THE EDITOR

The Faculty of Veterinary Medicine of Utrecht University has adopted the policy to concentrate its international links with partners institutions on a limited number of veterinary schools. With these institutes longterm relations are built up which are of mutual interest to the institutions and which include a broad scope of collaborating activities. These links provide opportunities for students, postgraduate students and staff members, academic as well as technical, administrative and management staff, to meet colleagues, to exchange ideas, to make friendships and occasionnally to visit each others institute and country. By concentrating the collaboration on a limited numbers of faculties located in different continents, it is envisaged to create for the Utrecht staff and students a wide spectrum of opportunities for study, research, teaching and education. With respect to the transfer of knowledge and technologies to developing countries it is also through the links with these partners that Utrecht tries to reach a wider circle of institutes in the country or the region. In 1997, EQUATOR will pay attention to the various aspects of this collaboration by back ground articles on these partner institues, interviews with students and staff members and reports on joint research activies, workshops etc. In this issue EQUATOR attention is given to the collaboration with the veterinary faculties of Harare and Maputo in southern Africa.

STUDYING FOR AN MSC DEGREE IN UTRECHT

first impression from the Animal Pathology course

The Utrecht Faculty of Veterinary Medicine has a longterm commitment for collaboration with the Faculty of Veterinary Science of the University of Zimbabwe (UZ), Harare. About 10 years ago the first steps were set on this path by Prof. John Lawrence and Prof. Grahim Hill of UZ and Prof. Dik Zwart and Prof. Simon van den Bergh of Utrecht. With substantial financial support from the European Commision and Utrecht University and a lot of enthousiasm of the staff members, a solid basis for longterm collaboration was made. Utrecht University, and for that matter the Netherlands higher education system, has no tradition in awarding masters degrees. However, realizing the needs of our partners for postgraduate training has stimulated the Utrecht faculty to initiate the Master of Science programme. The programme was started some years ago with the organization of the MSc course on Veterinary Epidemiology and Herd Health. In 1996 a start was made with the MSc Course on Animal Pathology, an inititive of the Department of Pathology. Prof. Eric Gruys, the course director, coordinates the inputs from the department and the research projects of the participants. EQUATOR spoke with some of the Zimbabwean partcipants of the course about their first impressions.

An introduction of 3 Msc students

Musa Tivapasi comes from a rural part of Zimbabwe, which stimulated him to study veterinary medicine. "I have always wanted to see my animals becoming better. I joined the veterinary school in Harare in 1989 and graduated in 1993. I got a position as a teaching assistant, first in biochemistry and later in clinical pathology. At the moment I am a staff development fellow of the University of Zimbabwe, sponsored by the European Union. Since a year I am studying pathology, with the emphasis on clinical pathology. I am mainly interested in the mechanisms of diseases, especially acute phase responses."

Borden Mushonga also originates from a rural part, called Rusape. "I joined the University's veterinary school in 1990. I took a year to do anatomy in 1993 in which direction I graduated. Then I joined the mainstream veterinary course which I concluded in 1995. I worked for 5 months as a staff development fellow, assisting with the teaching of courses in anatomy. I have one publication on the anatomy of the crocodile. And here in - Utrecht I am doing pathology in the first year of the programme. The second part of my programme will be on anatomy. My research is on the passive stay apparatus, the way it is stabilized in the knee of the horse. I am also attending a course in neuro-anatomy which is organized by the department of Functional Morphology."

Absolom Murondoti comes from Buhera. This part of Zimbabwe is rather dry and is only suitable for animal production. "That it why I got involved in animal health. I enrolled the University of Zimbabwe in 1990 and I completed in 1994. Upon my completion I was employed in the Clinical Department, in the teaching hospital. I was mainly interested in large animal medicine. Towards the end of my employment contract I was concerned with large animals in the ambulatory clinic. I got appointed to a staff development fellowship to do large animal medicine, which I am doing at the moment at the Utrecht department of Pathology. So I am doing pathology as the basis of my course. My research project will be on a subject in relation to large animal medicine. I will concentrate on metabolic diseases and my project is on the fatty liver syndrome in cows."

Can you explain why you came to the Faculty of Veterinary Medicine of - Utrecht University, to participate in a Master of Science course on animal pathology?

Musa: "I came to Utrecht to do clinical pathology, mainly because of the reputation of this University and its very good reputation for clinical pathology. The second reason why I came here is because of the link between our University and this University that is sponsored by the European Union. Because of these 2 reasons and the fact that the University of Zimbabwe cannot offer clinical pathology at Master's level, I found it appropriate to come to this place."

Absolom: "The department of Pathology is not my destination. I am using the first general year of this MSc course as a stepping stone to clinical medicine, because if I understand things at basic levels, it will help me to understand clinical disease during the second phase of my course."

Borden: "I could have done a course on Master's level in anatomy in Zimbabwe, but I came to Utrecht because there was no scholarship for the master's course in Zimbabwe and also because everybody else in our group who was selected for a staff development fellowship went to Europe."

For some of you the decision to go to Utrecht had to be taken rather quickly.

Musa: "I was supposed to start already in 1995, but I think because of financial reasons my application went late to my sponsor, which is the EU and I got delayed by one year. My papers were worked on for one and a half year, so I did not come in a hurry. I had ample time to prepare my visit.

Borden: Our applications went rather late and it looked as if they were going to fail, like in the case of Musa the year before. However, we were informed on the 15th of September, 1996, that we were supposed to leave on the 20th of the same month.

Unfortunately I did not have much choice myself and my family is not very happy with it. But, coming to Utrecht was the best for me under the circumstances.
The first few days were terrible. You have to leave your family unattended there. There are still a lot of problems at home, especially financial problems. The scholarships cover only ourselves. We had to resign from the University in Harare and now our families have to depend on themselves. So we have asked the university back home to help us.

Absolom: "In terms of arrangements there is need for improvement, especially on the

Borden Mushonga, Musa Tivapasi and Absolom Murondoti (from left to right) (Photo: De Gooijer)

application procedure and the financial aspects. Because although you know you have to go at the end of the year, the actual departure date is kept so close. There is no guarantee that you will be going until you actually go. Whatever you do in preparing to leave, you do it thinking: "I may go, I may not go". So, you do not make adequate preparations, until the day you are in the plane, and when you are in the plane it is already too late. When you come here and your family is there the distance is another problem.

You arrived in the Netherlands. What were your first impressions?

Musa: "Prof. Gruys helped us a lot. He understood our culture; he understood that we were different from the people around here and he really took care of us and our needs in this most important period upon arrival in the Netherlands. For me this was my first attempt to be outside of Zimbabwe and to be outside my own cultural cocoon. It was so different ....."

Borden: "When I arrived at the airport, Musa, who arrived a month earlier, and Prof. Gruys were waiting for us. Prof. Gruys took us here to register with the Department and he accompanied us to the places we were going to stay. Our coming here was made much easier by Prof. Gruys."

Absolom: "I agree that the reception was good. Problems, if you can call them problems, can be expected if you arrive in a new country. Take for instance the language problem. If you go to the shops and you want to buy things all items are described in Dutch, which you cannot read, and if you ask a person in the shop for help he or she may only speak Dutch. But this is acceptable and expectible. The weather was also a shock to us. We discovered soon that some of the clothes we had brought were completely useless, they were too light. So we had to buy new clothes, but I guess now we are climatized."

You even survived a very severe Dutch winter .....

Musa: "Yes, the winter was spectacular. It was my first time to see snow. It was also my first incline to try skating. It was really beautiful. But I have learned that where ever I go in the future, I will bring warm clothing. The experience of getting very cold fingers is unforgettable."

Borden: "Rain was for me the only form of precipitation, so to see snow is really phantastic. I also tried skating but I could not even stand up!"

Absolom: "I agree, but I would not prescribe it as spectacular, but as harsh, because it kept me indoors for quite some time. By the time I was thinking of getting some photo's, the snow was going away. But it was a fine experience. Regarding winter I can tell that we are more or less winter people. Because when we came it was the end of winter in Zimbabwe; we came to the winter in the Netherlands, and when we go for holidays, it will be winter in Zimbabwe again. So for the next two years we will merely live in winter."

How is, in general, your opinion about the Dutch?

Musa: "I find them very helpful. It is not easy to associate with the youths, but the other age groups are quite helpful. They accommodate and understand. We have very few contacts outside the university, but we have some personal friends who came to Zimbabwe and now invite us to their places."

Borden: "I find the Dutch people quite phantastic people and there is not the slightest sign of racism. Absolom went to Belgium and he was told that there were special white clubs and black clubs. This kind of things do not happen in the Netherlands."

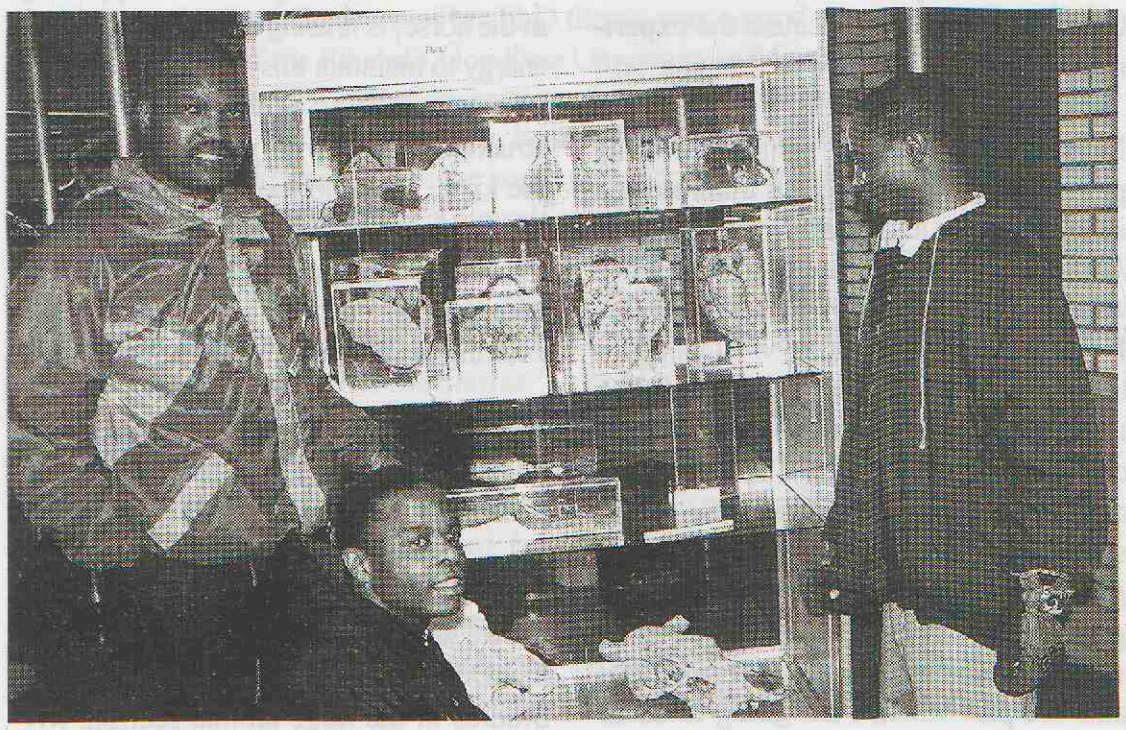
Absolom: "That was in Antwerpen. When I was there and asked somebody the way, he would not stop to pay attention. The clubs are divided. Blacks go to this area and whites to that. It may not be official, but it exists. In the Netherlands we went to some clubs and just mixed with the people. However, with the Dutch people you have to make your presence felt. We have to talk so that they talk to us. If you do not talk they seem to form a closed society. You have to break into it by talking to them.:

Borden: "If you tell them you have a problem, they will help you; if you do not tell them, they will not ask. They are a bit distant, but that is what I prefer."

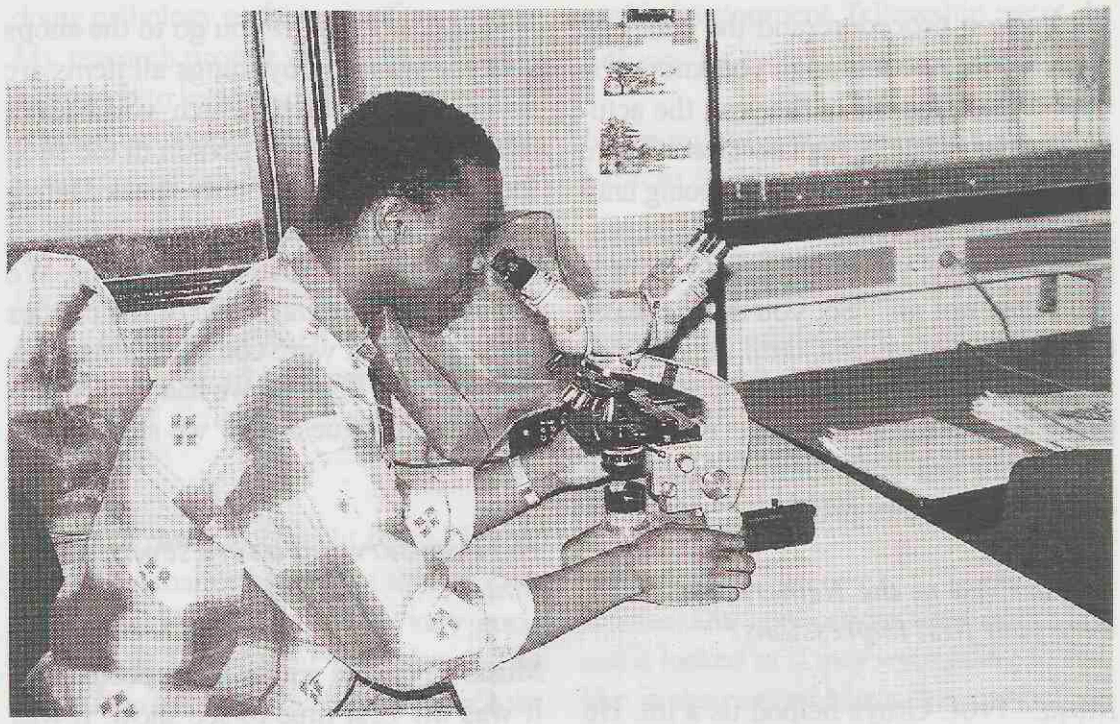
Back to the course: You did your first exams. Can you describe some of your impressions?

Musa: "Personally I say: "So far, so good". Everything is well planned, up to date, and we learn a scientific approach especially in the veterinary field. I really get what I came here for, a scientific approach to veterinary medicine."

Borden: I would like to give all the credits to Prof. Gruys and his group. The teaching



The MSc students in front of the teaching collections on pathology and anatomy (Photo: De Gooijer)



Histology forms a major part of the practical training in pathology (Photo: De Gooijer)

process here is better than what we have in Zimbabwe, in general. The Dutch professors really take their time to prepare the materials and young staff are given a lot of time before they can teach, to acquire enough knowledge. I am told that not everybody is allowed to teach. Only few people are allowed to give courses to students. I am quite impressed by that system."

Musa: "They also put personal effort in their teaching. They are really personally involved. Another point on the teaching aspects I like very much is that people who present a paper in the seminars are from different parts of Europe, so we get an international view."

Absolom: "I do agree that the course is well taught and well planned. I hope that if we branch after the initial phase it will continue to be like that, so that we can get the best out of the scholarship. The overall comment I will be able to give after I have completed the whole course, but for the part on pathology I can say I am satisfied."

Can you give a description of what you are doing now and of your research project?

Borden: "The pathology course basically consists of 4 blocks of which the first one was cellular pathology. The second one was on circulatory disturbances of inflammation, the third one on immunopathology, and the fourth one is going to be on tumour biology. There are lectures, seminars and practicals, which complement each other on the overall understanding of the processes that we study."

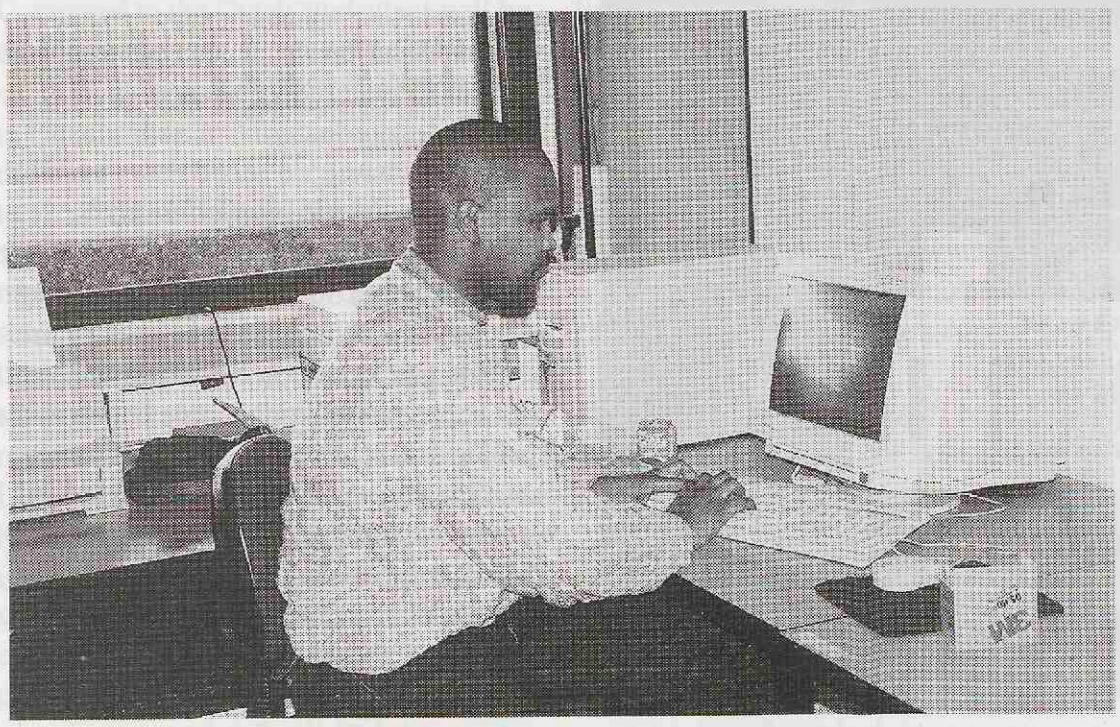
Absolom: "The whole group is doing that initial pathology course. Only after that we start specializing in areas of our own interest. In this period each one will concentrate on his or her research. My area involves fatty liver syndrome, which is a metabolic condition that occurs in dairy cattle, especially in high producing dairy cattle. It was found that soon after calving, because of the energy demand, the aniamls are going to a negative energy balance. If they do so in good body condition, they start mobilizing fat. This fat is taken to the liver. It was also found that during this period the liver is not able to "export" all that fat, so it accumulates in the liver. Animals in this condition are susceptible to other diseases, and the ability of the animal to defend itself against diseases is also compromised. So, my project involves the clinical monitoring of animals with a fatty liver, to see what diseases will develop in that state.
I am also trying to use an acute phase protein, haptaglobulin, to see if we can use that to diagnose fatty liver syndrome in dairy cows. At the moment you can only diagnose it by a liver biopsy. So, if you can use haptaglobulin to diagnose fatty liver syndrome, that would be an improvement.
I am going to do my research project at the Department of Internal Medicine and at ID-DLO in Lelystad. I will be stationed there for 6 months, because the experimental set-up is planned in that station."

Musa: "I am doing a project on acute phase proteins in relation to malnutrition in rural cows and goats in Zimbabwe. Acute phase proteins are produced when an animal is going through a disease. So, for my project we try to see what happens to the production of these proteins during infections and malnutrition under rural conditions in Zimbabwe. Can we use the acute phase proteins to monitor the health status of the animals? Actually, my project is split into two parts. The part I am going to handle here in Europe, because we do not have the facilities in Zimbabwe and the part which I am going to do in Zimbabwe, namely the collection of samples. I will process these samples here in Utrecht.
This set-up implies that I will not have holidays this year, because during the summer holidays I will go to Zimbabwe to collect samples from domestic animals for 6 weeks. Then I bring them here and finish my holiday. In September I will start the analysis of the samples. So it will be holiday on duty."

Borden: "It is generally known that horses do not lie down when they sleep during the night, unless they are sick. People always wondered why only horses are able to spend the whole day standing. It has been known without evaluation that a horse uses what we call passive stay apparatus, whereby the horse locks the patella over the head of the femur. We will try to evaluate scientifically what is happening in the horse; is it using energy or not using energy to maintain this sleeping position. If it is not using energy, what are the structures that provide passive support to the knee. I will do the project with Prof. W. A.Weijs and Dr. H.C. Schamhardt of the Utrecht Department of Functional Morphology, just to contribute to the existing pool of scientific knowledge."

When you return home with your new degree after two years, what are your prospects then?

Absolom: "I hope the University of Zimbabwe will be able to offer me a place in the Department of Clinical Veterinary Studies in the large animal section. My



Borden Mushonga behind a computer in the MSc room (Photo: De Gooijer)

role in offering service to the community will be teaching to the undergraduate students and participating in research. That is how I expect to proceed after my thesis."

Borden: "I expect to get a job in Zimbabwe. My stay in Utrecht changed the way I look at research. We have been exposed to a lot of functional "research knowledge" and I learned new techniques. I think I have a good chance to get a job."

Musa: "I think this fellowship is a golden opportunity to me. If I go back to Zimbabwe as a scientist I can contribute to the scientific world at large. I think I will be very useful in diagnostics and may be I will be involved in teaching activities. I think in Africa there are plenty of questions that have not been answered. We cannot explain our own environment but based on the training we got here we can get a little further. I prefer a university setting. We now realize what we can do with veterinary medicine. I never had such a view before my departure."

Jean de Gooijer

THE MOZAMBIQUE VETERINARY FACULTY

In international cooperation it is important to know your partners well. Therefore, the EQUATOR editorial board has decided to dedicate a series of articles in the 1997 edition of EQUATOR to those veterinary faculties or other institutions with which a regular cooperation exists. The presence of Mohamed Harún in Utrecht, who is working on the final chapters of his PhD thesis, was a good reason to start with the veterinary faculty of the Eduardo Mondlane University in Maputo, capital of Mozambique in Southern Africa. The cooperation programme between Utrecht and Maputo started in 1986 and is still continuing. It was a great pleasure for me (RvW) to interview Mohamed as I personally have some ties with Mozambique, dating back to my student's years and as Mohamed himself is an old friend of mine.

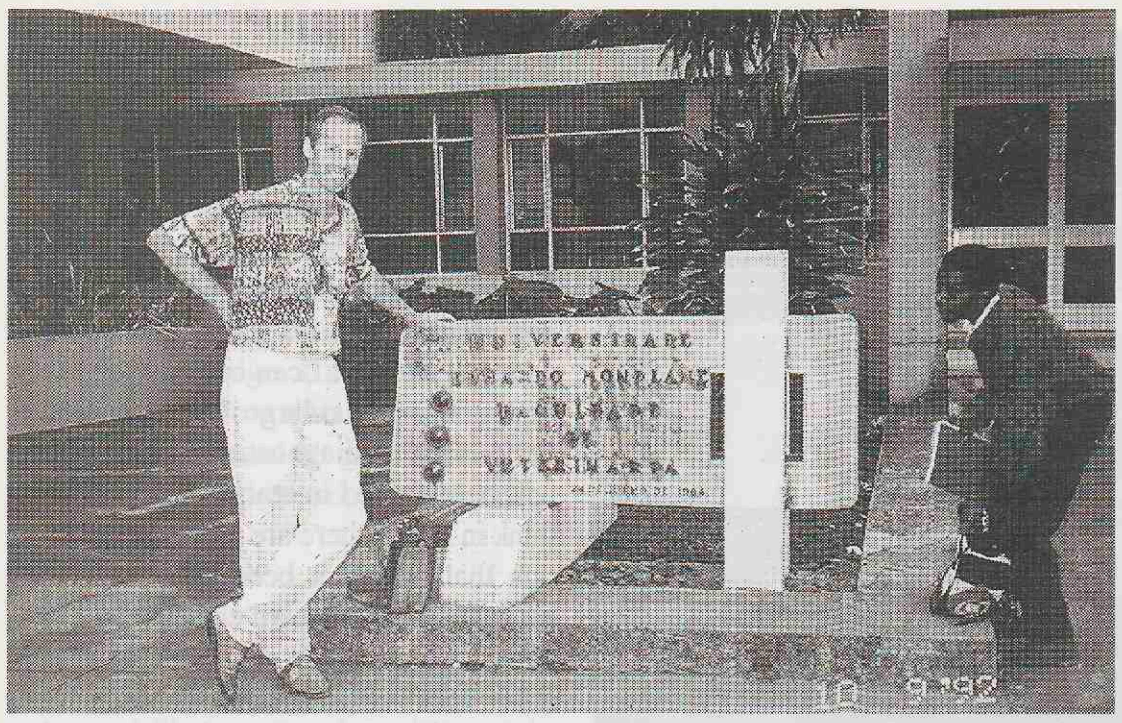
Could you first tell something about the history of the Faculty. As far as I can remember it was founded in the sixties?

That is true. The real reason why it was started was a political one. With the onset of the anti-colonial movement led by Mondlane in the early 60ies, the Portuguese colonial authorities thought that they would be able to control the intellectual top-layer of society better if they offered education at university level in the country itself. Before that time everybody who got a university education went to Portugal or another European country. However, over there they came into contact with people from other parts of Africa, mainly from the francophone countries, who had much experience and were very successful in the decolonization process. Offering university training at home would avoid those unwanted contacts. So, universities were opened in the colonies and the Veterinary Faculty started in 1964.

How was the quality in those days? Veterinary education in Portugal itself has never been regarded as really top of the bill.

The quality was at least as good as in Portugal. The reason for this is that the Faculty was run by the staff of the Laboratory for Veterinary Investigation. This Laboratory was founded already at the beginning of the century, under South African pressure, after the large Rinderpest epidemics at the end of the last century. During the years the Laboratory gained a lot of experience, especially in the field of tsetse control. The fact that the Mozambican Faculty was of about the same level as the one in Lisbon, is still reflected by the many veterinarians with a Mozambican background, who now have leading positions in Portugal, either in education or in research.

The Faculty started with 10-15 students per year but grew in later years. The best years in colonial times were the years 1971-1973 when also a lot of modern equipment came in. However, in those



Mohammed Harun, together with Rob Veeneklaas, the current project coordinator in Utrecht, at the entrance of the faculty in Maputo. (Photo: Collection Harun)

years all students were of Portuguese origin with the first black students coming in as late as 1974, the transitional year before independence. Needless to say that all staff members were Portuguese too.

What happened after independence in 1975?

The first years were hard. Almost all staff members returned to Portugal and even the graduates from former years left the country. At this very moment there are only three veterinarians left in Mozambique who graduated before 1975. Professors had to be 'imported' from all over the world. As Mozambique was a marxist-leninist state in those days, many of them came from Cuba and Chechoslovakia. There were also rather large numbers of people from Chili, who had fled the country after the fall of Allende in 1973. Although many of these teachers were very good, a drop in quality was unavoidable. The length of the course was shortened from 5 to 4 years. It should be said that there were many students who did not complete the study after the nominal number of years as they had to work and study at the same time to earn a living for themselves and often for their families. Many of them were older and took the opportunity they had not been able to take before independence. These students completed the course in 6-7 years. Later, in 1985, the length of the course came back to the original 5 years. Now it is even 5½ years. After 1980 the number of students grew to 30-42 per year. This number included several students from neighbouring countries such as Zimbabwe and Tanzania. These countries did not have faculties of their own yet. Now the number is more or less stable at 20-27 per year.

How is the Faculty staffed today?

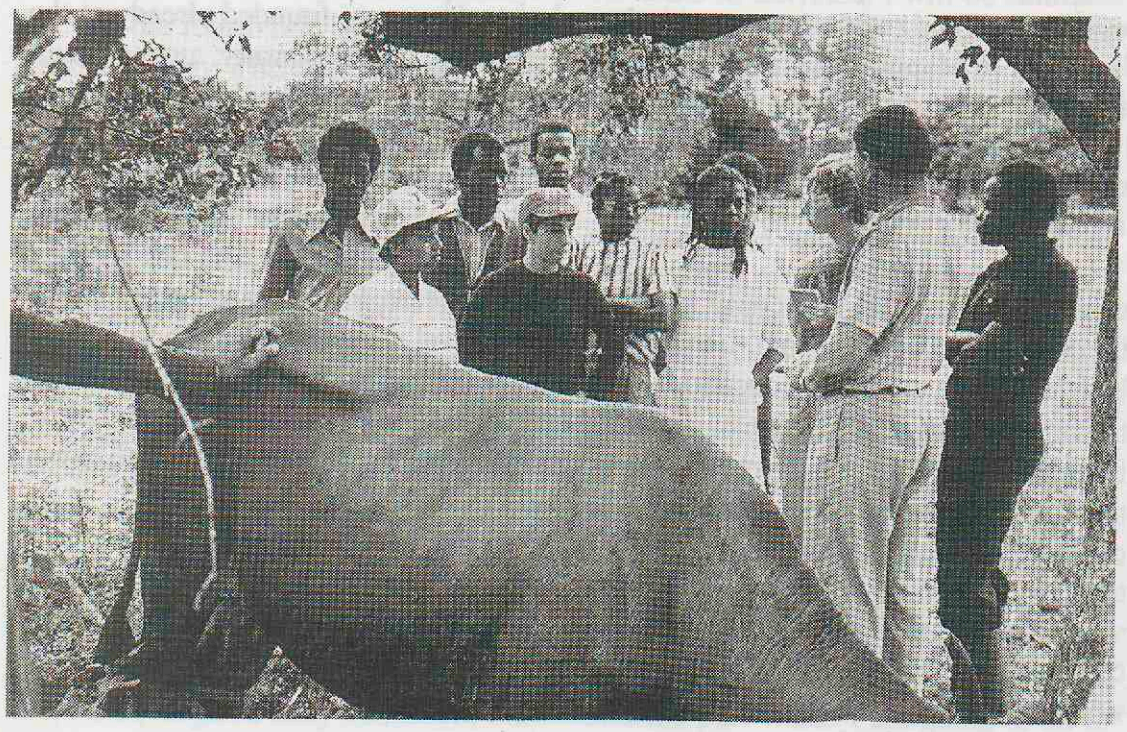
There are about 30 veterinarians working at a full-time basis, and about 5-10 are working part-time. Almost all of them are nationals now with only some Dutch and Cuban staff members left. However, scientifically we are still dragging behind as only one of those staff members has a PhD-degree. About 50% of the staff possesses a masters degree.

How is the situation with respect to technical equipment?

As I already told you, just before independence in the early 70ies, we were very well equipped. Then the flow of equipment (and spare parts!) stopped till about 1985. You can imagine what that meant to the Faculty. From the mid 80ies onwards things became somewhat better as funds were raised by the FAO and the Dutch and German governments who co-financed new laboratories and a new Faculty farm. At this moment there is still a lack of laboratory facilities but this will improve in the next years as the Dutch project will finance a new library and the Germans will finance the equipment of new laboratories, which will be situated in the old library.

What about the students? How do they compare with for instance the Dutch students?

An observation that may seem paradoxal is that the motivation of our students has decreased with increasing freedom of choice. In the old marxist-leninist days the whole economy was planned and so were the numbers of veterinarians that had to be educated. You were told that you had to become a veterinarian and that was it. Now they are free to choose but they are less motivated and less willing to do for instance some extra work than in the old situation. May be this is due to the fact that standards have fallen in the high schools.



Clinical examination of a patient in the field by one of the Dutch teachers (Photo: Collection Harun)

Compared to the Dutch students it will be clear that the case load and the diversity of clinical cases is incomparably higher in Utrecht than in Mozambique. So, students are much better prepared in a practical sense. However, in Mozambique students get much earlier exposed to clinical cases. In Utrecht you will hardly see a clinical case before your 5th year. I think that is too late. Another thing is that students are more thinking in terms of research here than in Mozambique. The Utrecht Faculty of Veterinary Medicine has a strong tradition in research and that is reflected in the students. In Mozambique education has been in the hands of expatriates for a very long time. These expatriates mostly stayed for only a couple of years and they all had there own vision. So, no real tradition could be formed. Now the international cooperation has slowly changed to a more long-term approach which undoubtedly is better.

Speaking about international cooperation, who have been Mozambique's main partners and what kind of impact did they have?

We have had quite a lot of partners. As I already told you, initially many of them came from the Soviet block or their allies. Nevertheless, we always also had contacts with countries from the Western world with the Netherlands and Germany (GTZ) as the main partners. Contacts with Spain have been rather short-lived and contacts with other Portuguese-speaking countries like Brazil and Portugal itself have always suffered from lack of funds. The same applies to the relationship with Harare. Now, contacts are being made with South Africa (Onderstepoort) and a triangular relationship Maputo-Harare-Pretoria is being initiated. This kind of relationship is also stimulated by the Dutch government, as it is one of their policies to stimulate the so-called South-South relationships.

Talking about South-South rela-tionships, how does Maputo compare with Facultiesin the neighbouring countries?

At this moment rather poor I am afraid, as most of these faculties are brand-new and well equipped like Harare, Lusaka and Dar-Es-Salaam or they have been completely refurnished in recent years like Onderstepoort near Pretoria.

In Maputo students are exposed to clinical cases early in their study (Photo: Collection Harun)

How is the situation with respect to employment for veterinarians who recently graduated? Where do they work and is there work for them?

At this moment there are about 200 veterinarians in the country (*that has a size of about 20 times the Netherlands, RvW*). Some time ago about 95% was employed by the state, but that number is falling rapidly. Now they have to find their own job after graduation. Some are employed by international organizations or non-governmental aid organizations. Others work for private companies. There are now for instance two large private small animal clinics in Maputo, that employ about 5-10 vets each. In the large animal sector there are no private practitioners, the Faculty being the only large animal clinic. There is no such tradition and the value of the animals is different to that in the Netherlands. Normally no large investments will be made to cure a certain animal. On the other hand, there are quite a few vets employed by large livestock companies and there are even colleagues acting as directors of those companies. There is still enough room for growth. With increasing specialization in the veterinary profession and a strong economic growth (about 6% last year) I think that the market will have sufficient capacity to absorb the graduates who leave the Faculty for the years to come.

A last question. What is your view of the future, both for you personally and for the Mozambican society as a whole?

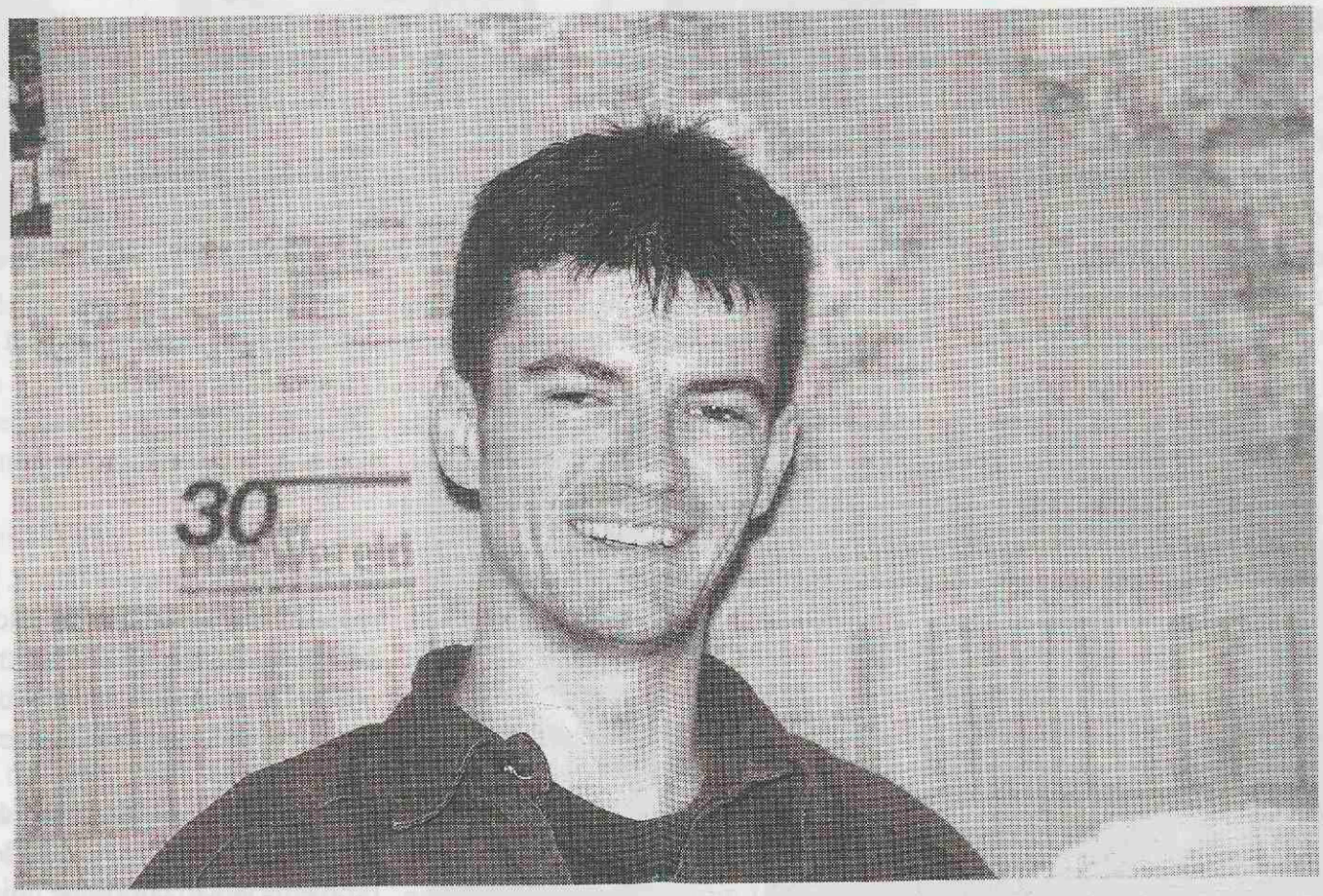
I myself have been working at the Faculty for 12 years now and I like it. I like to do research and I also like to teach. I cannot say the same of the administrative work one has to do. When I was vice-dean this kind of paperwork took a huge amount of time.

As for the society as a whole I am not fully optimistic. There are a lot of social problems in Mozambique nowadays and corruption is widely spread. I will not state that the old marxist-leninist system was the solution, far from that. But in those days the government had some kind of a vision where to go. Now they are much more opportunistic with no clear vision at all.

In the veterinary field there are various tendencies. On the one hand the quality of the education is getting better and there is an increasing stream of scientific publications emerging from the Faculty, on the other hand many capable veterinarians leave their profession for better paid jobs in completely different areas. This is a pity as the veterinarian is crucial to rural development. But in this field unfortunately also the vision is lacking and there is no planification.

René van Weeren

INTRODUCING
DAAN VINK



Daan Vink is the new member of the editorial board (Photo: De Gooijer)

Since the departure of Merel Langelaar in 1996, the editorial board missed the inputs of motivated students. Fortunately, Daan Vink, a 5th year veterinary student, was willing to take her place in the board per January 1997. Daan introduces himself to the readers of EQUATOR in the following way.

I was born in Zambia and grew up in Southern Africa. Development cooperation is not new for me. I have always felt an involvement with the problems facing developing countries, and going back to work in these countries always seems a natural thing to do. During my study of veterinary medicine at Utrecht University, I am consciously working towards that goal.

Shortly after commencing my studies, I became involved with the foundation Diergeneeskunde in Ontwikkelingssamenwerking (DIO), the Dutch member of the Vétérinaires sans Frontières - Europa (VSF-E) network. VSF-E is a platform of cooperating European veterinary development organizations. I still am very committed to this work. Five years of working within DIO and VSF-E gave me the opportunity to acquire a measure of experience in (veterinary) development project formulation and implementation, and in organization and management. Through the contacts I built up at international meetings, I was able to visit a number of projects being carried out by these organizations in the field. These experiences consistently reaffirmed my dedication to work in the field of development cooperation.

As a student I have also been involved in the organization and execution of scientific studies. In 1995, I carried out a cross-sectional epidemiological study into subclinical mastitis in Egypt's Nile delta. Currently I am preparing a four-month research study into the prevalence and etiology of central nervous disorders in goats in Mozambique.

I hope I will be able to make a valid contribution to EQUATOR in the coming years. I look forward to this opportunity of gaining more insight into the developments within the field of veterinary development work, and to meeting other people active within it.

FOR YOUR INFORMATION 1

Internet Information on Genetic Resources

There is general concern that the genetic variation within the few domestic animal species is disappearing through breed substitution and crossbreeding. Any reduction in the diversity of genetic resources narrows the scope to respond to changes in the environment, disease challenges, or demand patterns. In the tropics, however, the most serious concern is the imminent loss of locally adapted breeds. An important strategy in the conservation and utilization of livestock resources is the dissemination of information on these resources. For cattle, Marleen Felius has published 'Cattle Breeds - an encyclopedia'*. She provides an overview of approximately 700 cattle breeds throughout the world in words and images. The breeds are classified according to geographical distribution, historical background and external features. Information is also given on functions, and adaptive, production and special characteristics. The animals have been drawn to scale, in water-colours. In doing so, Marleen has succeeded in linking-up art and science!

The exploitation of genetic resistance to diseases is becoming increasingly important in livestock development programmes, particularly where disease control measures are too costly, too complex to implement, or ecologically unsound. In Africa, a prominent example of underused genetic resources is trypanotolerant livestock. The use of trypanotolerant livestock is seen as the only practical sustainable way to increase livestock production in tsetse-infested areas.

The Internet World Wide Web site http://www.zod.wau.nl/~www-vh/felius/index.html presents Marleen Felius' information on the trypanotolerant cattle breeds from West Africa. The N'Dama is already well known for its resistance to trypanosomiasis, and is widely represented in literature. However, information on the West African Shorthorn breeds is scanty.

Both Marleen Felius and the Department of Animal Production Systems are very much interested in new information and in exchanging information on the breeds presented. We welcome readers of this web site to send e-mail messages to: Fokje.Steenstra@DPS.VH.WAU.NL

Prof. Herman van Keulen
Department of Animal Production Systems, Wageningen Agricultural University, Wageningen, the Netherlands.

*Marleen Felius (1995). Cattle breeds an encyclopedia. Misset, Doetinchem. ISBN 90 5439 017 4

FOR YOUR INFORMATION 2

Invitation to participate in an electronic conference on: Balancing livestock, the environment, and human needs

Invitation

If you are involved in livestock produc-tion, policy formulation, research, or development activities and are concerned about the interaction between livestock production and environmental degradation, the International Livestock Research Institute (ILRI), the Food and Agriculture Organization of the United Nations (FAO), International Development Research Centre (IDRC) of Canada, and INFORUM (an International Non Governmental Organization), would like to invite you to participate in a global electronic conference from March 10 to May 24, 1997. Since most stakeholders who are concerned about these issues do not have access to electronic mail, we are setting up a consultative process that will also include face-to-face local interviews and national roundtable discussions in 15-20 countries in Asia, Africa, and Latin America where short-term demand for livestock products is in conflict with longer-term concern for environmental degradation, such as deforestation, loss of biodiversity, land degradation, nutrient depletion, pollution from excessive nutrients, etc.

The electronic conference

The electronic conference will begin with an overview of the issues related to live-stock and environment interactions and the types of environmental degradation that can be associated with: (a) grazing-systems, (b) mixed crop / livestock systems, and (c) industrial (land-detached) livestock systems. Conferees will then have the option of dividing into groups organized by types of system to discuss and identify possible future policy and technology options and research and development strategies. Throughout the 12 week conference, the emphasis will be on sharing experiences and discussing issues of common interests that could lead to future cooperation among institutions with different perspectives but a common concern for human welfare and the design of policies and technologies that provide people with both environmental services (such as clean water and air, biodiversity, etc.) and important livestock products and services (such as meat, dairy products, manure, animal traction, and recycling wastes, etc.).

Language of the conference

While the global electronic exchange will be conducted primarily in English, some resources have been allocated for translation from Spanish and French to English. More information will be available soon.

Background

This electronic conference is a follow-up activity to a multi-donor study on live-stock and the environment that,

was coordinated by FAO, the World Bank and USAID. Other donors that supported the study included Denmark, the European Union, France, Germany, the Netherlands, and the United Kingdom. Results of this study which has just been completed (January 1997) will be released as an input to this electronic conference at various stages. The specific objectives of the consultative process (including both the face-to-face and electronic components) are:

1. to give all stakeholders the opportunity to have their views on livestock, environment, and human welfare interactions included in a position paper to be developed at a global meeting in the Nether-lands in June, 1997.
2. based on all stakeholders perspectives, to identify policy, research, and development strategies to alleviate the negative and enhance the positive impacts of live-stock on natural resources indifferent types of livestock production systems in different countries and ecoregions
3. to identify areas of common interests which can lead to future research and development institutional collaboration, partnerships, networks, etc.

How to join the electronic conference

In order to participate in the electronic conference, you need to have access to Electronic Mail (E-Mail). The Listserver and various Lists that we will be using for the discussion have been set upon FAO's computer in Rome. To join the conference please:

Step 1

Send an E-Mail message to the address: Mailserv@Mailserv.fao.org What you put in the subject line of the E-Mail message is optional, but the text that you send should read: Subscribe LxE-L. By sending in this subscribtion message you will be adding your - E-Mail address to the Livestock and Environment Interaction List , where we will begin our exchange of information before we divide into subgroups by subscribing to other Lists. After you send in this E-Mail message you should receive two E-Mail messages from Mailserv (the name of Listserver on the FAO computer). One message will be an acknowledgment from Mailserv that you are subscribed; the other message (also from Mailserv) will include information about how to unsubscribe from the LxE List and the request that you introduce yourself.

Step 2

The message asking you to introduce yourself will include the instruction that you send a message to the address: LxE-L@mailserv.fao.org (NOTE! this address is different from the address that you used to subscribe). This is the address that we will be using for the conference. Please follow the instructions and send an E-Mail address (to: LxE-L@mailserv.fao.org) that includes the following information:Your Name, Institution, Address, Tel, Fax, E-Mail Address. Two or three sentences (no more!) describing your interest in livestock, environment, and human welfare issues.Please subscribe and introduce yourself as soon as possible! The formal conference will begin March 10. If you have any problems subscribing or introducing yourself, please send an E-Mail messageto either Bob Hart (Bhart@undp.org) or Victor Mares (V.Mares-ETH@cgnet.com). On behalf of the Electronic Conference organizing committee from ILRI, FAO, IDRC, and INFORUM, we look forward to your participation in this important event.

For the Netherlands

For the Netherlands a discussion group will formed and those who are interested to participate should register according to the instructions in the invitation and inform Ir. Arend Jan Nell of the International Agriculture Center (E-Mail: A.J.NELL@iac.agro.nl) of your interest to join a discussion group in the Netherlands.

FOR YOUR INFORMATION 3

Improving the Delivery of Animal Health Services in Developing Countries: a Literature Review

Sarah Holden, Steve Ashley and Peter Bazeley

Fiscal pressures have commonly reduced the availability and quality of state veterinary services. This new report evaluates some of the opportunities for improving the supply of those animal health services that require public management. It represents a review of over 250 references in the English language literature, carried out by *Livestock in Development* for the Overseas Development Administration.

Contents

A theoretical basis for reform

Empirical evidence: a framework for comparison

Assessment of the performance of state veterinary services

The third sector

Prospects for improvement

Barriers to change

Available from:
Livestock in Development, P.O. Box 20, Crewkerne, Somerset, TA 18 7 YW, UK. Tel: +44.146074874, Fax: +44.146075874. E-mail: 100121.3216@compuserve.com

Price: £ 8, UK/Europe postage £ 1, Rest of World airmail £ 2.

ISBN 0 9528061 0 X

VACANCIES
INTERNATIONAL COOPERATION

This section contains vacancy announcements which the editorial board considers to be of possible interest to Dutch veterinarians. Besides vacancies that will be taken from Vacatureblad Internationale Samenwerking, Tijdschrift voor Diergeneeskunde, Veterinary Record, Intro vacatures (RPD Advies/ Ministry of Internal Affairs) etc., there will be room for personnel advertisements. For further information about the vacancies please contact the institution or company directly.

SARI Ltd. Management Consultants

ASSISTANT TECNIQUE JUNIOR
(Docteur vétérinaire) / CHAD

Fonctions et Qualifications
Docteur vétérinaire, il devra posséder une expérience de trois (3) ans minimum dans l'exercise du métier en clientèle privée. En tant qu'assistant technique à l'institution financière chargé de la mise en place des crédits aux privés, une expérience dans des projects d'appui à la privatisation de la médecine vétérinaire est requise ainsi qu'une connaissance en gestion et suivi de microcrédits. Il devra avoir une maitrise totale de la langue francaise, de l'outil informatique, une bonne capacité de communication et une aptitude à conduire des programmes de formation.

Durée: 2 ans

Départ: Le plus vite possible

Institute financière
Commission Européen

Information and candidature
Sari Ltd. Management Consultants, Avenue Louise 90, 1050 Brussels, Belgium (tel.: +32.2.5128895, telefax: +32.2.5129577).

HVA International

HVA International, a member of the Koop Group of companies, is a world-wide operating company concentrating on agriculture and rural development, providing consultancy, engineering, management and technical assistance services to the agro-industry and rural communities.
Our clients come from both the public and private sector.
HVA International is currently engaged in some 20 projects in the tropics and sub-tropics

At the HVA International Headquarters in Amsterdam projects are identified, prepared and managed related to the production and processing of milk, meat and animal feed MILK.
Because of expanding activities and broadening of its expertise HVA International has a vacancy for the position of

LIVESTOCK CONSULTANT / PROJECT MANAGER

This expert will be based in Amsterdam and will frequently travel to various HVA International projects in the Middle and Far East, Africa and Latin America in order to take part in project assessments, (pre) feasibility studies, consultancy missions or in advisory visits to HVA International managed farms or projects. The Livestock Consultant has to work as a member of a multi-disciplinary team and therefore he must have excellent communication abilities and a positive attitude towards development issues.

TASKS

- Advice on veterinary and animal husbandry matters related to farms/projects managed by HVA International or clients
- Assist in the identification, assessment and preparation of new projects for HVA International
- Report in a comprehensible and concise way in the English language, verbally as well as in writing
- Represent HVA International and promote the company to potential clients

REQUIREMENTS

- University degree in Veterinary Science and/or Animal Husbandry
- An age of 35-40 years with a minimum of 5 years of experience in tropical or sub-tropical areas
- Fluency in spoken and written English, preferably also French and/or Spanish
- Excellent representative and communication capabilities and willingness to travel frequently to remote areas in the world

The expert will report to the Manager Livestock Department.

Applications to be forwarded to: HVA International, Personnel Department, Att. Ms Chr. Siller, Postbus 12204, 1100 AE Amsterdam, The Netherlands (Tel: +31.20.6919180, telefax: +31.20.6969599)

Further information about the position can be obtained from Mr G.A. Veldink, Manager Livestock Department.

CALENDAR

Vienna, Austria
7 - 11 April, 1997
FAO/IAEA Symposium on 'Diagnosis and control of livestock diseases using nuclear and related techniques', 'Towards disease control in the 21th century'. Organized by: The Animal Production and Health Services of the Joint FAO/-IAEA Division. The Programme contains the following sessions: Serological aspects; Molecular aspects; Ticks / Vaccines / Epidemiology; Monitoring / Training; Information / Modelling; Satellites / Climate and Considerations of impact. Location: VIC, Vienna. Information and registration: IAEA, P.O. Box 100, A-1400 Vienna (Tel.: +43.1.2060.-26054; telefax: +43.1.20607; e-mail: crowther@ripo1.iaea.or.at).

Montpellier, France
5 - 9 May, 1997
4th Biennial meeting of the Society for Tropical Veterinary Medicine (STVM-97). Programme: (1) Molecular epidemiology of tropical diseases with subjects: Molecular techniques and diagnosis; Epidemiology; Application of molecular epidemiology to tropical countries; Tropical diseases as a model in molecular epidemiology. (2) Hemoparasitic diseases and their vectors with subjects: Tick biology; Tick pathogen interactions; Integrated control of tick and tick borne diseases; Trypanosomiasis diagnosis and control; Tsetse biology and control. (3) General sessions: Contributed papers on: Tropical veterinary medicine; Disease diagnosis, management and control, etc. Organization is in collaboration with CIRAD-EMVT. For information: Internet STVM homepage http: //forest.bio.ic.ac.uk/STVM. Information: Dr. E. Camus, CIRAD, BP 2386, Jarry Cedex 97002, Gouadeloupe (FWI) (Tel.: +590.252490; telefax: +590.252492; e-mail: camus@cirad.fr).

Bornholm, Denmark
22 - 24 May, 1997
XVIII Symposium of the Scandinavian Society for Parasitology, with a special mini-symposium on Human and Veterinary Tropical Parasitology. Information: Secretariat of Symposium Bornholm, Danish Bilharziasis Laboratory, Jaegersborg Allé 1D, DK-2929 Charlottenlund (Tel.: +45.39.-626168; telefax; +45.39.626121).

Barneveld, The Netherlands
16 - 27 June, 1996
3rd Course on: Artificial insemination in pigs. Subjects: Collection of semen; Evaluation and processing of semen in the laboratory; Insemination and sow production control; Organization of an AI station and Selection of breeding stock. Fees including board and lodging: Dfl. 5,000. Information: IPC Livestock Barneveld College, Dep. of International Studies and Cooperation Programmes, P.O. Box 64, 3770 AB Barneveld (Tel.: +31.342.414881, telefax: +31.342.-492813, e-mail: io@ipcdier.hacom.nl).

Sun City, South Africa
10 - 15 August, 1997
16th International Conference of the World Association for Advancement of Veterinary Parasitology (WAAVP). Organized by: Parasitological Society for the Advancement of Southern Africa. Information: 16th WAAVP Conference, Event Dynamics, P.O. Box 567, Stathaven, 2031, South Africa (Tel.: +27.11.8836155, telefax: +27.11.-8839643).

Wageningen, the Netherlands
17 August - 21 November, 1997
25th International course on dairy farming in rural development. Course programme: Introduction; Dairy development; Farming systems; Statistics; Economics and agricultural credit; Breeding; Pasture production; Nutrition and feeding: Animal health; Reproduction and AI, Extension and case studies. Course fee: Dfl. 5,500. Closing date: 1 May, 1997. Information and registration: International Agricultural Centre (IAC), P.O. Box 88, 6700 AB Wageningen (Tel.: +31.317.490111, telefax: +31.317.418552, e-mail iac@iac.agro.nl).

Barneveld, The Netherlands
18 August 1997 - 20 February, 1998
27th International course on poultry husbandry and 27th International course on pig husbandry. Organized by: IPC Livestock International, Barneveld College. These courses will run at the same time. Following these courses participation is possible in the 20th International animal feed training programme (AFTP), which runs from 23 February to 22 May, 1998. Direct entry in this last course is also possible. Fees including board and lodging: Poultry course: Dfl. 24,500; Pig course: Dfl. 24,500, Feed course; Dfl. 12,000 or 14,500 (direct entry). Closing date: 1 May, 1997. Information: IPC Livestock Barneveld College, Dep. of International Studies and Cooperation Programmes, P.O. Box 64, 3770 AB Barneveld (Tel.: +31.342.414881, telefax: +31.342.492813, e-mail: io@ipcdier.hacom.nl).

The Hague, The Netherlands
24 - 29 August, 1997
World Congress on Food Hygiene and 12th International symposium of the World Association of Veterinary Food Hygienists. Congress theme: Healthy animals, healthy food, healthy consumers. Information scientific programme: Prof. Dr. J.G. van Logtestijn, Drieklinken 63, NL-3972 EC Driebergen. Information and registration: Royal Netherlands Veterinary Association, Mrs. D. Raasing, P.O. Box 14031, NL-3508 SB Utrecht (Tel.: +31.30.2510111, telefax: +31.-302511787, e-mail: knmvd@pobox.ruu.nl).

Acapulco, Mexico
6 -12 September, 1997
7th International Theriological Congress (7ITC) and Symposium on 'Veterinarians in conservation biology'. The symposium is organized by: World Association of Wildlife Veterinarians. For information about and contributions to the symposium contact: Dr. A.W. English, University of Sidney, Department of Animal Health, Private Mailbag 3, Camden, NSW 2579, Australia (Telefax: +61.46.552931).

Harare, Zimbabwe
14 - 18 September, 1998
IX International Conference of the Association of Institutions of Tropical Veterinary Medicine (AITVM). Organized by: Faculty of Veterinary Science, University of Zimbabwe, P.O. Box MP 167, Harare. Location: International Conference Centre, Harare.

EQUATOR

NEWSLETTER ON VETERINARY ASPECTS OF INTERNATIONAL DEVELOPMENT COOPERATION

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VOLUME 9,1997

STUDYING FOR AN MSC DEGREE IN UTRECHT (2)

an impression from a participant in the course on Veterinary Epidemiology and Herd Health

Tembo Mumba comes from Zambia. He got his veterinary education at the University of Zambia in Lusaka and graduated in 1993. As Lundazi district's veterinary officer and head of department, Tembo Mumba is involved in the monitoring and control of diseases like trypanosomosis and East coast fever. Because he wanted to improve his knowledge in this field, he applied for a place in the Master of Science course on "Veterinary epidemiology and herd health", which started in September 1996 at the Faculty of Veterinary Medicine of Utrecht University, the Netherlands. Tembo Mumba discusses with the editor of EQUATOR some aspects of the veterinary situation in his home country and gives his impressions on the course.

"The year after my graduation I was posted by the Government in the Eastern Province and I work now in Lundazi district, where I am the head of department of the veterinary service.
In the Eastern Province I was appointed by the Government, but the project there was with Belgian government development cooperation. The coordinator was Dr. Berkvens from the Tropical Institute in Antwerp. They provided most of the funding and did the research work. As a government veterinarian I was not attached to the project, but we had people who were counterparts to the Belgians. We worked in combination."

What were your duties?

"My main duties were disease monitoring, surveillance and control and a bit of administration. The major diseases are anthrax, trypanosomosis, East Coast fever, black leg, anaplasmosis and heartwater. And you tend to find minor helminthiasis.
We have 2 major programmes, one on East Coast fever and one on trypanosomosis. Three times a year we are required to go out into the field, get samples and vaccinate young cows. In the big region I used to work we had the samples analysed, to see the prevalence of both East cost fever and trypanosomosis. But in my small district Lundazi I could do the analysis myself with a microscope and a centrifuge.
The infrastructure in the field is run down, but previously we had very good crush pens and dip tanks. In that time it was not difficult to handle animals. But now you have to struggle during sampling, to see what is happening in the district. You have to cast the animal down with the risk that something will happen, the animals are not used to being handled anymore. However, we are managing. But actually, long time ago the infrastructure was there."

How is the situation regarding the diseases you mentioned at the moment?

"For trypanosomosis we have a preva-

lence of about 25 percent in my district. Long time ago the government had the policy of giving free drugs and free control measures like tsetse fly control. But, since our economy has been running down, all those free services are cancelled. Now the farmer finds that he has to buy drugs for his animals, and these are expensive. We tend to have a lot of casualties since the farmers cannot afford drugs.
For East Coast fever, however, we still have a project funded by the Belgian government, where we vaccinate all the cows at a reduced fee. East Coast fever used to claim a lot of young cows. But, ever since we started the immunization in 1985, there has been an increase in the number of animals that have no problems with East Coast fever. Although once in a while you can have cases of animals which were not brought for immunization.
The other diseases like anthrax and black leg are seasonal, and when there is an outbreak, measures are put in place right there and then. But we do not have a longstanding arrangement. If there is a large outbreak you have to do something."

During your second job in Lundazi district you found out about the MSc course on Veterinary Edpidemiology and Herd Health in Utrecht, the Netherlands ...

"What actually happened - I do not know how they arrange it - is that in the rural areas we get a very big book, with all sorts of courses in the Netherlands. So, that is where I saw the ad for the course on veterinary epidemiology and herd health. Since what I was doing, had to do with disease monitoring, surveillance and control, the epidemiology course was a good course for me, which would help me with my duties back home. You see, we learned the basics at undergraduate level but these were not well grounded. I really appreciate I was accepted."

How did this go?

"It was a bit tricky, because what happened: I received 2 letters from Utrecht, which were sent 3 weeks from each other. However, they reached me together, while I was in the middle of an immunization campaign. Also, the Embassy people phoned that I was required to fly to the Netherlands in 2 weeks time. Normally, you need to give our government 3 weeks notice, so that they can grant study leave. Therefore, I had to stop whatever I was doing and there was no proper hand over. Considering that I live alone, it was not possible to find a proper caretaker for my house during my absence. And this is really tricky, but the course was more important. If I get back and things got lost... I can replace them. So, within the 2 weeks I went. My bosses were understanding and they allowed me to go to Utrecht."

You prepared your departure and travel within a week. How was your arrival?

"I knew there would be a very big difference between the Netherlands and my place, which is about 800 km from the capital city. The capital is modern but our rural places often lack power, water and even living in the capital for some weeks makes you find everything different. So coming to the Netherlands meant a big change.
The people in the Netherlands and their attitude are very different from the people back home. I realise that the Dutch are a bit closed. Okay, I like that, because people mind their own business. And they are always strict on time, you have to make appointments. Where I come from, you do not have "agendas"... I can walk up to my neighbour anytime, if I do not find him, that is normal. I do not have to make an appointment. But I learned that if you want to meet people in the right places, you have to make an appointment. That is one thing I picked up, and I will take it back home.
Another difference is that I come from a mountaineous region, the Netherlands are flat. When I arrived in the Netherlands at about 22.00 hours, it was still light. I had read about this in the books, but to experience that by 10 o'clock at night you can still walk in the streets, that was amazing.
We survived the winter because temperature dropped gradually. People warned us that it would be very cold in January, so we waited for January but when the temperature went blissful we did not feel the difference. Then they said: "May be in February". And February was also very cold, but it felt the same as January. I think we got adapted to low temperatures. It was amazing to see the little children skate so easily but I did not try to skate myself. When my colleagues tried the trick most of the time they spent flatfaced on the ice. So I thought it wise to try something else than skating."

Soon after your arrival the course started. What are your impressions so far?

"In the first semester the teachers made us adjust to work with books again and being a student. The coordinator took care that we could handle it. The course opened us up and all the concepts I got taught as undergraduate were made understood. The second semester was a bit heavy. A lot of other subjects were introduced, like statistics and mathematics. I had not done anything on mathematics for more than 6 years but this course brought it back to me. Another thing is the computer. Some of us could not even use a keyboard. At home they did not bother to look at the typewriter, but here you come in, the teachers give you your home work and want your work to be printed. I started typing with one finger and it took hours, but I consider it part of the training. I can confess now that I can type and handle the wordprocessor and other computer programmes.
Recently we started our research and that

An example of digital dermatitis (Photo: Collection Dept. of Infectious Diseases and Immunology, Utrecht)

is going on well. If you work hard, you can start research during the second semester in order to save time during the third semester to do the writing. But towards the end of this semester we are taking "economics" and that is really demanding. We normally go to farms once in a while but with "economics" it is hard to combine. However, after this last 10 weeks we can fully concentrate on our research."

What is your research topic?

"My research topic is on mortellaro, digital dermatitis. It is a claw disease which does not occur in Zambia. But I chose this subject for the love of science, and also to discover and work with new techniques. For this very research I learned the PCR technique, which I only heard about at school. I thought I should contribute to the scientific debate.
I am looking at the effect of treatment on the lesions. That is the main component. And there is one bacteria I like to monitor and treat. I had to go to Ulm in Germany to continue with my research because in the Netherlands we could not find enough patients. I traveled 800 km, did some work for two weeks and after this period I had a day off and we went to the mountains in Austria. I am very happy with the results I obtained in Germany by checking patients and taking samples. I can use the results to put things together. When my study is finished I can tell my fellow colleagues about the effect of antibiotic treatment and hopefully I have made clear what micro organism is involved.

How do you see your future?

I like to work in my district in Zambia again. But to put my new knowledge to immediate use there will be difficult, because at district level we do not have computers. We collect a lot of data which we send to the headquarters. So if I remain in my small district I will have to get a computer before I return. Otherwise I am afraid I will get bored. You know, if you get used to the computer.... it is like an addiction. But the Government does not think along those lines. They sometimes shift you to other areas, pending on your qualifications.

Do you have recommendations for future students in the course?

It is a nice course where you learn a lot. I told some of my friends out there to apply, because the sort of knowledge you get, prepares you very well on how to handle your data. The course also taught us how to set up our own research studies. With that knowledge, I will be able to handle whatever comes up in Zambia, to design and carry out scientific research. So if you have the chance to come to Utrecht you should do it!

Jean de Gooijer

Nuffic

Netherlands organization for international cooperation in higher education

THE NETHERLANDS FELLOWSHIP PROGRAMME (NFP)[1]

One of the main aims of cooperation between the Netherlands and developing countries is to transfer knowledge and skills and to assist educational establishments in these countries. The main reason for the establishment of international courses at training institutes in the Netherlands is the conviction that people in the developing countries should have access to the specialised knowledge and experience available in the Netherlands.
The Netherlands Fellowship Programme (NFP) is part of the Development Coopera-tion Prgramme of the Netherlands government and the responsibility of the Division for Education and Development of the Ministry of Foreign Affairs. The objectives of the NFP are:

- to develop human potential through education and training mainly in the Netherlands, with a view to diminish qualitative and quantitative deficiencies in the availability of trained manpower in developing countries,
- to contribute to the development and strengthening of institutions in developing countries (institution building)

The fellowships offer the opportunity to attend an academic programme or a postgraduate course. Nationals from (most) developing countries can apply for these fellowships. The programmes and courses for which fellow-ships are available have been selected, and information can be found in a booklet entitled 'The Netherlands Fellowship programme 1997-1998'[2]. Besides, there are possibilities for fellowships to follow tailor-made programmes. No fellowships are offered for the purpose of conducting research, for initial education or regular education for a degree at a Dutch university.

Fellowships for professionals / The regular fellowship programme

Fellowships are intended to deepen and broaden the knowledge and professional skills of persons in midcareer in order to enable them to contribute to the development of their countries and strengthen the capacity of the organizations by which they are employed. The fellowships are not aiming at promoting personal advancement. They are awarded only for training in The Netherlands for:

- one of the 100 or so regular international courses offered at one of the Institutes for International Education,
- specially organized training programmes in the Netherlands,
- tailor-made training programmes for individuals or groups.

In the field of agriculture and more particular in livestock production the following institutes organize a number of regular courses: Wageningen Agricultural Univer-

sity (Wageningen), International Agricultural Centre (Wageningen), Larenstein International Agricultural College (Deventer), IPC Livestock Barneveld College/International Training Centre on Animal Husbandry and Milling Technology (Barneveld), IPC Livestock Oenkerk/Dairy Training Centre Friesland (Oenkerk) and the Royal Tropical Institute (KIT, Amsterdam). For information on the eligibility of your country for these fellowships and on the application procedure one should contact the nearest Embassy of the Netherlands.

Fellowships for university students / The University Fellowship Programme

The University Fellowship Programme (UFP) is a programme giving graduate students from developing countries the opportunity to participate in international training courses at university level in the Netherlands with the objective to contribute to capacity building in the participants' country.

The UFP is different from the other two NFP components in two respects:

- It is aiming at graduate students and individuals recently graduated at Bachelor's level from universities in developing countries;
- It offers fellowships for a number of training courses in English, held by Dutch universities and in a specific case by a Dutch college.

The courses for which UFP fellowships are available are also included in the information booklet of the Ministry of Foreign Affairs[1]. The duration of the courses is between 3 and 18 months. For each of the courses at least a Bachelor's Degree or equivalent is required.

In the field of agriculture and more particular in animal health and livestock production the following institutes organize these training courses:

Utrecht University
Research Institute of Toxicology (course title: Risk assessment and risk management of chemicals).
Faculty of Biology (course title: Tropical bees and beekeeping in tropical climates
Faculty of Veterinary Medicine (course title: Veterinary epidemiology and herd health)

Information and application
Information and application forms are available at the embassies and consulates of the Netherlands . Completed forms with the annexes should be returned to the Embassy, that will send it to the Netherlands Organization for International Cooperation in Higher Education (NUFFIC) for selection.

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1 Source 'The Netherlands Fellowship programme 1997-1998', Publisher: Development Cooperation Information department of the Ministry of Foreign Affairs, The Hague, the Netherlands, ISBN 90-5328-105-3

2 Available at the embassies of the Netherlands or Ministry of Foreign Affairs, DVL/OS, P.O. Box 20061, NL-2500 EB The Hague, the Netherlands

DEVELOPMENT OF BASIC ANIMAL HEALTH SERVICES IN CAMBODIA

When Chris Bartels, a Dutch veterinarian, left for Cambodia in February 1993, he was appointed as a Veterinary Advisor with Church World Service (CWS) and seconded to the Department of Animal Health and Production in Phnom Penh at the National Veterinary Diagnostic Laboratory (NVDL). In this article in EQUATOR he discribes his experiences and ideas for the restructuring of veterinary services at the farm level.
"Between 1984 and 1994, CWS had been supporting the day to day activities of this laboratory. But it became obvious that such a project was better supported by a multi-lateral organization as part of a national project. CWS was able to interest the World Bank / IFAD for a national programme on strengthening the veterinary services by a 5 year programme, starting in 1997. I was involved with the National Department of Animal Health and Production (NAHP) until I left Cambodia in April, 1996. But, during the last one and half year, I was mainly active as mediator between the NVDL- and NAHP direction and the World Bank /IFAD".

Recent history of Cambodia
Until the late sixties, Cambodia had a relatively quiet position amongst the countries in South-East Asia. This changed rapidly during the Vietnam war. Because the Vietcong used Cambodian terrirory for protection, Cambodia became involved in this war. In 1970 a coup, with backing of the USA, was staged in which King Sihanouk was replaced by general Lon Nol. During 1970-1975, the government was too weak to deal with local guerillas (Khmer Rouge). Just a few days before the end of the Vietnam war, the Khmer Rouge took control over the whole country. People were ordered out of the cities and were forced to work in the country side. The country was transformed in one huge concentration camp, which was completely sealed off from contact with the outside world. Money, education, health services were all eliminated. Estimates range between 1 and 2 million people (out of 7 million) that died because of genocide, starvation and the lack of health services.
In 1979, Vietnam invaded Cambodia and installed a government which was in charge during the next decade. During this period Cambodia was again not recognised by the international community. This changed only when in 1990 the USA gradually modified its policy towards Vietnam.
In 1993, general elections were held, supported by a large UN contingency. Only then, Cambodia was recognised

Village Vets are trained in topographical anatomy (Photo: Bartels)

internationally and both international organisations and investors became interested.

Church World Service

Church World Service (CWS) is an American Non Governmental Organisation (NGO). When CWS came to Cambodia in 1979 they were among the first foreign organizations which entered a devastated country after the undescribable years of Khmer Rouge between 1975 and 1979. As a result of the international isolation during the Vietnamese occupation, only a few NGO's were stationed in Cambodia. Under this Vietnamese governance not much was done to rehabilitate the country. Aid was primarily focused at central level, because it was not possible to travel freely outside the capital city.

In those years, CWS provided mainly emergency assistance, and later it supported the National Department of Animal Health and Production (NAHP) through vaccine supply (FMD, blackleg) and assistance for the National Veterinary Diagnostic Laboratory (NVDL).

Starting in 1991, NGO's were allowed to move freely all over the country, and to start projects in the provinces. With the installation of a free and fairly elected government in 1993, multilateral (World Bank, Asia Development Bank, UNDP, IFAD, EU) and bilateral organisations became interested in Cambodia and were looking for programmes to assist in the rehabilitation of the country. These organisations took over the long held positions by the NGO's, enabling the NGO's to focus on village and district level projects.

Animal health programme in the province

"When I moved to Battambang-ville in Battambang province in the North West of Cambodia in August, 1994, there was an ongoing CWS project since November, 1991. Two British veterinarians had been working with two Cambodian staff, who were seconded from the provincial Office of Animal Health and Production (OAHP). The major emphasis of this project was on vaccination campaigns (FMD, blackleg and haemorrhagic septicaemia) for cattle and buffaloes in two provinces (Battambang and Bantey Meanchey). Beside material inputs, there was a training programme for provincial and district veterinarians on various subjects.

However, the objective to have less sick animals through strengthened veterinary services was not reached. A farmer with a sick cow, could wait for a district veterinarian to come and pray for a good result or be lucky and ask for CWS to come and see his animal".

Why basic animal health services?

"The last link in the veterinary services, which is the one between the district veterinarian and the farmer, did not function and was very hard to establish using the existing structure of government services. What was needed was a person at the village level (nearby, well-known, trusted) who was able to examine, diagnose and treat an animal. Such a person would need training and equipment and good monitoring during an extended period of time. Most likely this person would not have a full-time job seeing and treating sick animals and he or she could be anybody with some experience with animals, preferably a farmer. We called it a Village Vet".

A good health of draft animals is important for the people in the villages (Photo: Bartels)

Training the trainers (Photo: Bartels)

Cooperation with the government offices

Since our involvement with the Office of Animal Health and Production (OAHP) had been so longstanding and intensive, it was decided to continue this cooperation. We cooperated with government workers to train and monitor the Village Vets. The OAHP provided manpower, buildings, field experience and an infrastructure, while CWS would provide knowledge on training and veterinary skills, means (transport, computer etc) and money for materials, equipment, training courses, accommodation and additional salaries.

By involving provincial staff of the OAHP, general veterinary knowledge and skills were improved, and this provided a basis for cooperation between the Village Vet (private sector) and the government veterinary services (public sector).

Basic animal health service in reality

The following 'players' play a role in basic animal health service (BAHS):

* The Village Vet is elected by a general village meeting after a few sessions in which the objectives of the programme are explained by the trainers.
* The trainers are district and provincial staff of the OAHP. They are all veterinarians by profession, but their educational background varies between a training course of three months at a provincial agricultural school to four years at the Royal University.
* The direction of the OAHP office is appointed to this position on basis of his personal connections with other government officials.
* The CWS staff, consisting of the two Khmer staff that had been working with CWS before and myself. The Khmer staff are university qualified and gained experience in the three years they have been working with the British veterinarians. They are well equipped to go out on their own and treat animals in a correct way. They are seconded to CWS and have followed additional training courses in English language skills, TOT (training of trainers), management, reporting and OOPP (Objective Orientated Programme Planning).

Daily activities

Trainers are working in groups of two persons. They go out in the morning on motorbikes to the communes were the training of the Village Vets is conducted. The training is given at the compound of the communal pagoda. About 10-15 villages form a commune. The Village Vets of one commune gather together in the morning (4 days per week in the first cycle) for training.

The training is given in modules. After each module (average of about 4-6 days) there is a two week period for monitoring the Village Vets by the trainers. They visit each Village Vet individually and repeat parts of the lessons that are not well understood or join the Village Vet to see a sick animal.

In the first cycle there are six modules, totalling 20 weeks. This first cycle is focussing on veterinary skills. A Village Vet is required to know: (1) how to ask questions to the farmer; (2) how to examine a sick animal (we stick to the following parameters: temperature, respiration, pulse, mucosal membranes, lymph-nodules and coat and hair; (3) how to link the possible disease causes to a case (4) how to treat an animal correctly and (5) how to advise the farmer to take care of the animal and to take measurements in order to prevent future sickness.

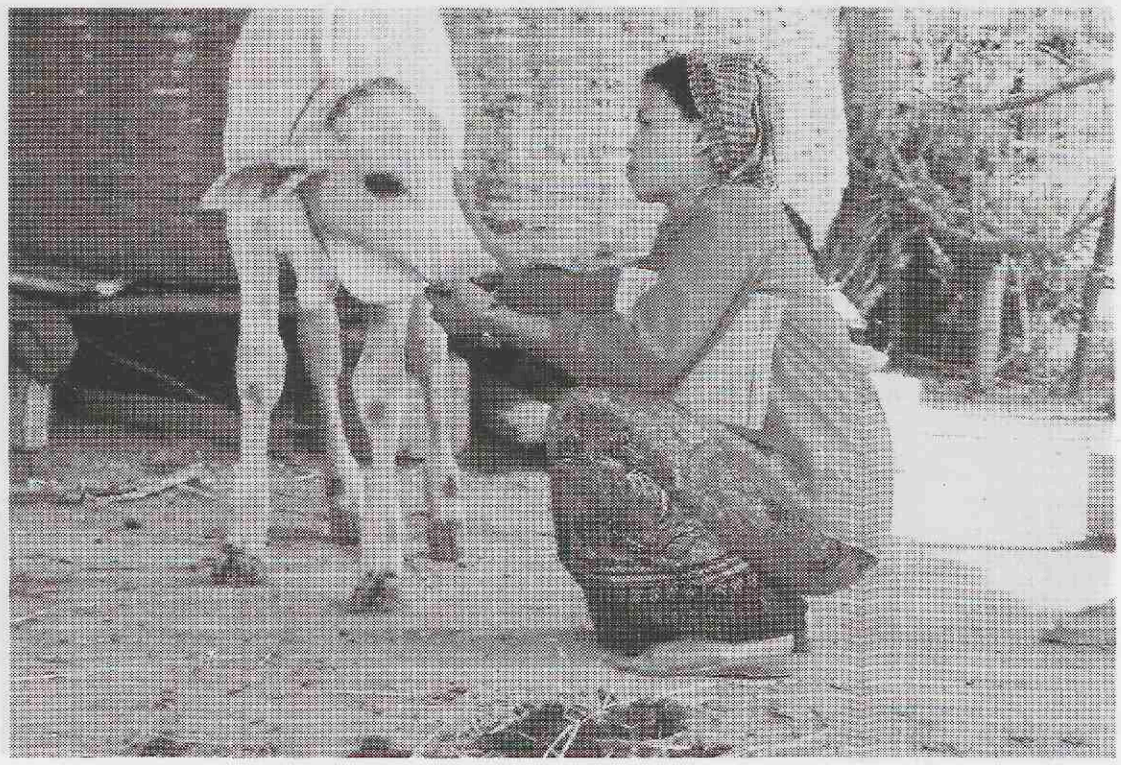
After the initial cycle, the trainers continue to provide lessons to the Village Vets, but less frequently (2 days per week) and more on animal husbandry, like feeding, nutrition and housing and with extra emphasis on preventive measures but also on duck raising.

Treatment and recording

The Village Vet receives an initial kit of medicines and materials at the start. By treating animals, he or she will generate money to buy new medicines or materials. For each case, the Village Vet fills out a record form with his or her findings, adding the most likely disease cause (choice of six): parasites, microbes, nutritional deficiency, poison, trauma and stress and noting the advice given to the farmer. Any treatment involving the provision of antibiotics requires the Village Vet to return to the farmer for three subsequent days and note the body temperature of the animal.

Communication

By means of such report forms, it is easy to monitor the Village Vets. Although I could not read Khmer script, I only understand and speak the language, I was able to monitor Village Vets myself through these forms, without the need for an interpreter. These were my best days, jumping on a motorbike and wandering off to see one of



A Village Vet examines a patient (Photo: Bartels)

THE VETERINARY PROFESSION IN THAILAND

General information about the Kingdom of Thailand

Thailand is situated in the heart of Southeast Asia which has rapidly developed in both science and technology in the recent decade. Thailand itself covers appoximately 510,000 square kilometers, which is almost 15 times as large as the Netherlands. It extends about 1,600 kilometers from the north to the south and 800 kilometers from the east to the west, and has a coastline of more than 2,000 kilometers. Bangkok has been established as the capital city more than 200 years ago, and therefore it is the most important city which dominates the administrative, financial, industrial and commercial activities of the country.

The climate is tropical with long hours of sunshine and high humidity. There are three seasons: hot, rainy and cool season. Its population was appoximately 60 million in 1996, of which 95 percent is Buddhist. However, there is total religious freedom and all major religions can be found in practice. The official national language is Thai; principal other languages are Chinese and Malay. English is a compulsory subject in the school. It is widely understood, particularly in Bangkok and other major provinces.

Agriculture

Thailand is an agricultural country. Approximately 60% of its population is working in the agricultural sector. During the last decade Thailand has strongly developed its economy and has stepped forward to become a new agro-industrial country with an approximate national economic growth rate of 8% per year, and the economy keeps growing at this rate until now. The agricultural products have greatly improved and are widely exported all over the world.

Regarding livestock production, Thailand is a major exporter of chilled or frozen chicken. The country exports an amazing variety of chilled, frozen and canned seafood as well. Moreover, a plentiful of tropical fruits are intensively grown all over Thailand and the export of these fruits increases day by day. The country is now the world's largest exporter of canned tuna, canned pineapple and frozen prawns.

Veterinary education in Thailand

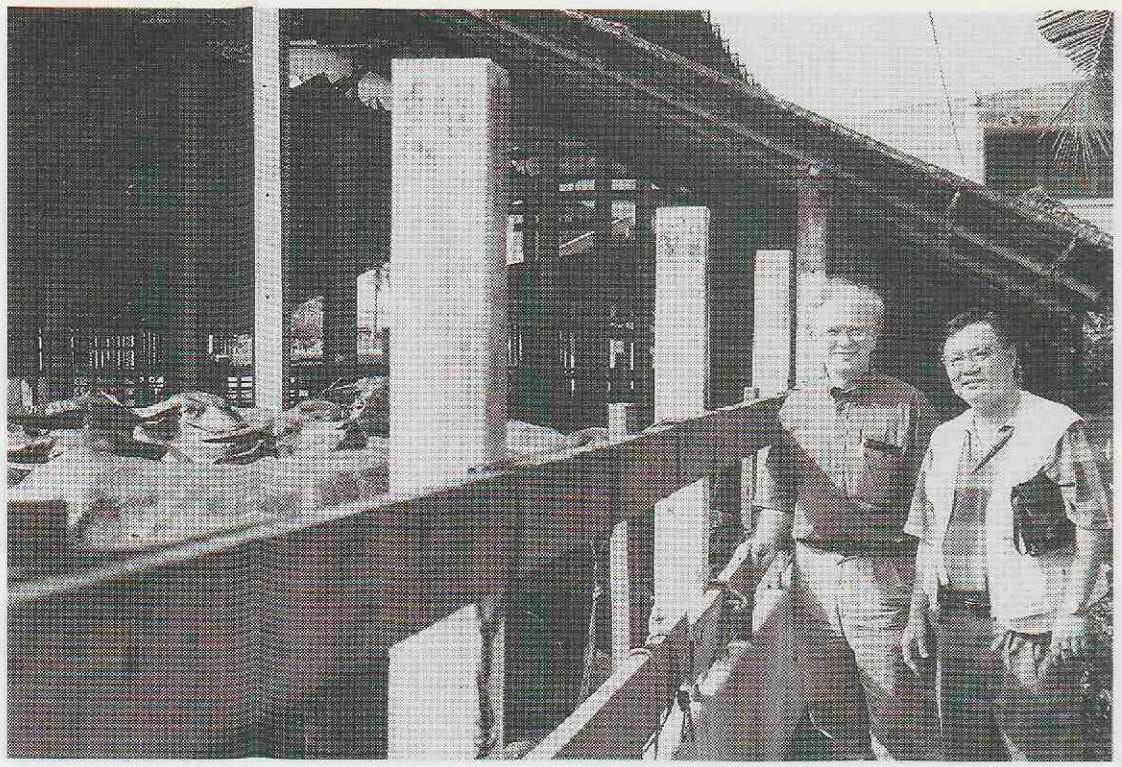
Veterinary education in Thailand was established more than 60 years ago. The first school was founded at the University of Medical Sciences (now Mahidol University). Nowadays, 4 government funded veterinary faculties and 1 private faculty are established at universities in the important parts of the country. These include Chulalongkorn University, Kasetsart University, Khon Kaen University, Mahanakhon University and the new faculty at Chiangmai University. The faculties offer professional veterinary education to students who selected this disciplin and subsequently met the requirements of the national entrance examination, administered by the Ministry of University Affairs. The number of students per year is different at each university and ranges from 50-150. The veterinary curriculum lasts six years, and includes courses in pre-veterinary basic science, pre-clinical and clinical veterinary science. For a full Doctor of Veterinary Medicine (D.V.M.) degree, a minimal GPA of 2.00 and an accumulative field practice are required.

Veterinary students study 1 year pre-veterinary science, 2 years pre-clinical veterinary science and 3 years clinical veterinary science. Basically, they have to study all compulsory subjects and have to pass the minimal requirements

the Village Vets to discuss with him or her the problems encountered and to go and see a problem case. Of course, my Khmer was not perfect but after a while a Village Vet would start interpreting between me and the farmer. Sometimes I needed just three of four words while for the Village Vet it could take 15 minutes to explain the case to the farmer.

Chris Bartels

The second part of the article will be published in one of the next issues of EQUATOR



In the frame of the Utrecht-Thailand link programme Prof. Dr. G.C. van der Weijden visited his colleague Assoc. Prof. Dr. Chainarong Lohachit (Photo: Collection Rukkwamsuk)

for each subject in order to advance to a higher year. In the last year of their study, Thai veterinary students have to participate in clinical practice in both the large animal and small animal hospital of their faculty. All students must follow the same study path for their professional degree without any differences. The students are required to study all important animals. After their graduation the veterinarians are expected to become a general practitioner, therefore the veterinary curriculum in Thailand does not include specialization subjects. The graduated students are able to participate in all kind of veterinary tasks. In the near future, when the primary labour market for veterinarians will be saturated, specialization in a particular area will be necessary. However, already some species specific subjects are offered to the last year students, like equine internal medicine and aquatic medicine.

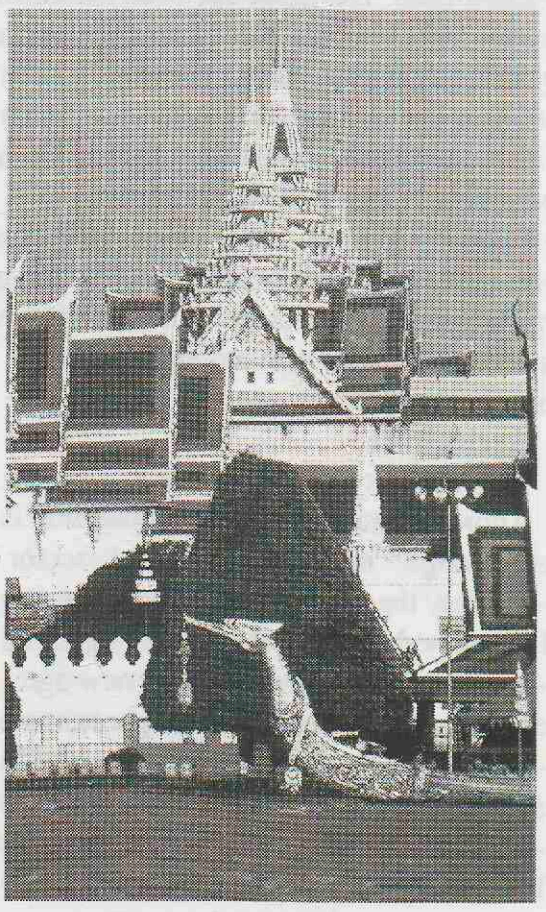
Apart from the faculties of veterinary medicine, the Department of Livestock Development had set up the Veterinary Training School in order to deliver well-trained students who were predominantly trained to perform vaccination and artificial insemination tasks in livestock all around Thailand. For several reasons, this school was reorganized in 1994. Because at that moment Kasetsart University was in charge of the reorganization of this school, the Veterinary Technical School was established at Kasetsart University. This school collaborates with the Faculty of Veterinary Medicine of Kasetsart University and the Department of Livestock of the Ministry of Agriculture and Co-operatives. This particular school now educates students to become skillful in all aspects of veterinary laboratory work.

What do the veterinary students do during their study?

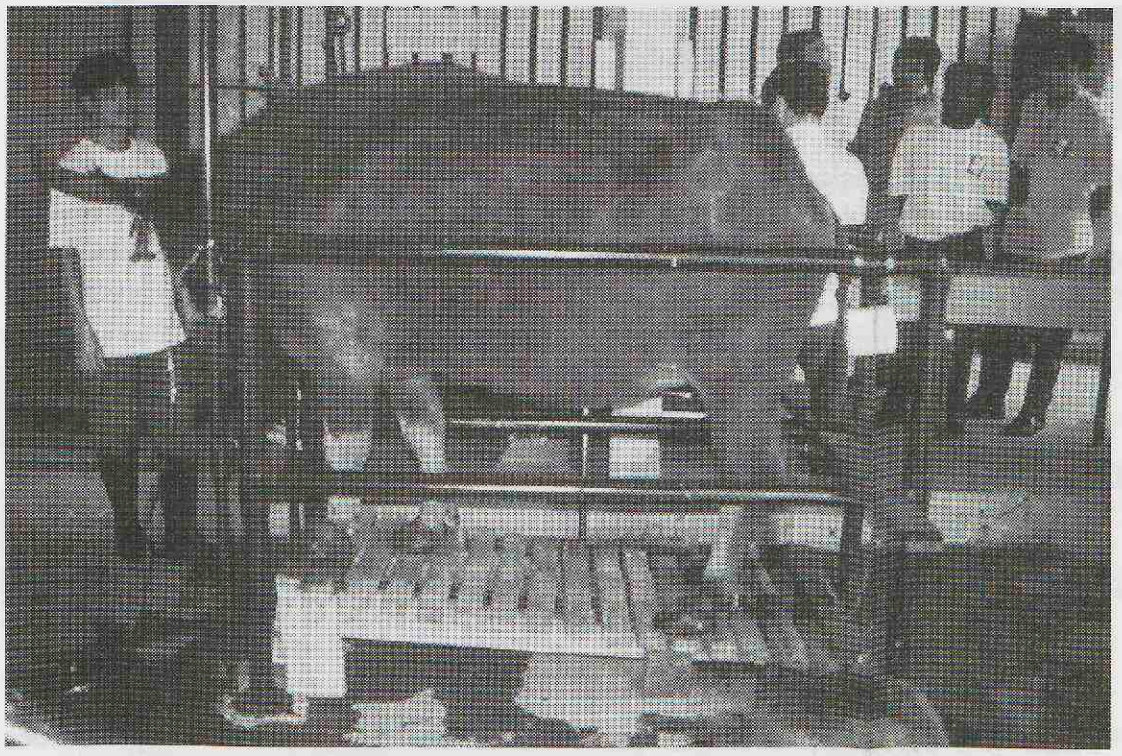
An answer to this question is quite simple, one may think. Students certainly study, but beside that, what do they do? The veterinary students themselves participate in extracurricular activities which are generally not mandatory for them, except for an accumulative field practice which is required to obtain the professional degree. Extracurricular activities are mainly organized by the veterinary student club and the committee of the faculty. Among these activities are "the Veterinary Services and Livestock Extension Programme", "the Rabies Control and Eradication Programme" and "the Student Journal Club". The aim of the veterinary services and livestock extension programme is to train veterinary students in the particular field practice in a rural area. The participating students will be engaged in a rural village for a couple of weeks in order to learn how to work as a field veterinarian in a rural situation. They are trained to do vaccinations (this task will be done following the national routine programme). They are also trained to negotiate with the villagers, of which most are less educated, to make them understand and to give them the knowledge and know-how on topics concerning their livestock. The most crucial aspect the students will learn from this activity is to work together. Furthermore they will experience how to manage an activity by themselves.

The rabies control and eradication programme is designed to administer rabies vaccination to animals, mainly dogs and cats, and to pass on knowledge on this fatal disease to the people by using different media, such as films, posters, brochures, and by giving presentations.

The veterinary student journal club aims at publishing the monthly veterinary news magazine. This magazine contains recent information on livestock and companion animals, which is reviewed or reported by field veterinarians, faculty staff and even by veterinary students.



A temple along the Choa Praya River (Photo: Collection Rukkwamsuk)



Participants in a buffalo reproduction training programme (Photo: Collection Rukkwamsuk)

Graduates and their job opportunities

Thailand rapidly develops in every segment, certainly including the veterinary field. Most of the time veterinary students are offered jobs before their graduation. In general, the graduates can choose to work for the government or in the private sector. Formerly, the government sector played an important role in the veterinary profession because the agricultural business was not so intensively developed yet. This situation has gradually changed, and the private sector is now in search of much more veterinary students than before.

Two main government institutions that need a large number of veterinarians are the universities under the Ministry of University Affairs, and the Department of Livestock Development under the Ministry of Agriculture and Co-operatives. However, some veterinarians obtain a job in the Ministry of Defence as a veterinarian for military dogs and horses and some carry out their veterinary work in the zoo.

In the university, the main tasks of the veterinarians are undoubtedly teaching, research and also providing veterinary services, either in the university animal hospital or in the field. In contrast, the Department of Livestock Development is responsible for all livestock, and that brings a diversity of veterinary work in which the veterinarians can take part.

In the private sector, the veterinarian can be employed by companies involved in all kinds of animal production, either as a farm animal veterinary consultant or as a technical sales representative. They can also be hired to work in a private veterinary clinic, mainly in a small animal clinic.

Buffaloes, beef and dairy cattle, pigs and poultry, are the predominant farm animals in Thailand. Unlike pig and chicken that are mostly raised on a large farm, which is owned or managed by a private company, buffaloes and beef or dairy cattle are raised by small scale farmers. However, for all these animals, the veterinarians of the Department of Livestock Development have to take full responsibility for the maximisation of the production and the health of the animals, to achieve the highest profit for the owners.

The main interest of private practitioners is in small animals, mainly dogs and cats. There are quite a lot of private clinics around Thailand, particularly in the big cities. Horses are bred by a limited group of people. The number of horses is relatively high in the military sector. Every year a small number of horse patients is treated in the university hospital. Horse riding is becoming increasingly popular among Thai people. Therefore it is to be hoped that horses in general will become more popular, which would be an opportunity for equine veterinarians.

Livestock and diseases

Dairy herds are mainly located in some provinces of the country such as Chiangmai in the north and Ratchburi and Saraburi in the center. Beef cattle and buffaloes are found in every part of the country, but a large number of buffaloes is kept in the Northeast. Pigs are produced substantially in the central part but they are also raised in the north and northeast. Poultry industry can be found in all parts, but predominantly in the east and northeast.

Some important diseases in cattle that must be controlled because of national regulations are, for instance, foot and mouth disease, hemorrhagic septicemia, and anthrax. Vector-borne diseases, such as babesiosis, anaplasmosis and trypanosomiasis, can occasionally affect the cattle.

Swine fever (hog cholera) and pseudorabies (Aujesky's disease) are the 2 major diseases that can dramatically increase the losses in pig production in Thailand. For the poultry industry, new castle disease, fowl cholera, infectious bursal disease and duck plague are the most crucial diseases.

Veterinary profession in the near future

Since the government has explicitly planned to be the leader of the agro-industrial countries in Southeast Asia, the gross budget has contributed intensively to many urgent agricultural projects. The veterinary profession,

which has been clearly proclaimed as a scarce profession in Thailand, has been substantially subsidized and promoted. The present Faculties of Veterinary Medicine have to accelerate the production of sufficient graduate veterinary students to cope with veterinary tasks, that are increasing. As a consequence, the Faculties are in an emergency need of capable instructors, and thereby at least 10 faculty staff each year are being awarded with a further higher education in a particular veterinary field of interest in foreign countries around the world, mostly in the United States and in European countries. It is to be hoped that within the next decade after the return of the scholars, the veterinary education will be expansively improved by their contributions. Their specialisation will be considerably helpful for the development of the livestock production, which than can compete with other countries on world level.

Theera Rukkwamsuk*

UTRECHT/THAILAND LINK PROGRAMME

As a result of occasional exchange visits in the eighties and of a large fact finding mission under the responsiblity of the Ministry of University Affairs of Thailand in 1992 to various veterinary institutes in EU and USA, the Faculty of Veterinary Medicine of Utrecht University was selected by the Ministry of University Affairs of Thailand as partner institute for their 10 year support programme to upgrade veterinary education in Thailand.

A Memorandum of Understanding between the Ministry of University Affairs of Thailand and the Faculty of Veterinary Medicine of Utrecht University was signed in 1993. This agreement, with a duration of 5 years, included scientific cooperation between the Faculties of Veterinary Medicine at Kasetsart University, Chulalongkorn University and Khon Kaen University of Thailand and the Utrecht Faculty of Veterinary Medicine.

Under this agreement about 20 staff members of the Thai veterinary faculties visited Utrecht to participate in short training courses (upto 3 months), MSc courses (18 months) and PhD training (4 years). The training of the Thai staff members is supported by fellowships of the Thai government.
About 6 staff members of Utrecht visited Thialand to participate in Workshops and Conferences. Three students from Utrecht participate in international veterinary courses in Thailand.

* *Theera Rukkwamsuk is a staff member of the Faculty of Veterinary Medicine of the Kasetsart University. Presently he follows a PhD training programme in Utrecht.*

FOR YOUR INFORMATION 1

Pathology Symposium in Harare, 8-10 September, 1997

Charles Louis Davis DVM Foundation
The Charles Louis Davis DVM Foundation for the advancement of Veterinary and Comparative Pathology, organizes the Southern and Eastern Africa Pathology Symposium, in Harare on 8-10 September, 1997. This symposium is organized in the memory of Dr. Dolf Goedegebuure, a former staff member of the Faculty of Veterinary Medicine of Utrecht, who was one of the initiators of the symposium. Dr. Goedegebuure died last year.
The North American Division and the European Division of the Foundation in cosponsorship with the Faculty of Veterinary Medicine of the University of Zimbabwe, will present this Continuing Education Programme in veterinary pathology from 8 - 10 September, 1997 at the Organizational Training and Development Centre, St. Lucia Park, Crichton Avenue, Harare, Zimbabwe.

Programme
The programme includes the following subjects:

The role of pathology in veterinary services (Prof. M.J. Obwolo, Harare); Pathology of diseases of poultry (Prof. W.M. Reed, Michigan); Neuropathology (Prof. J. van der Lugt, Pretoria); Pathology of diseases of swine (Prof. G.L. Stevenson, Purdue); Wildlife pathology (Prof. N.P.J. Krick, Pretoria); Selected wildlife conditions (Prof. N. Kock, Harare); Livestock pathology (Prof. M.J. Obwolo, Harare); Pathology of diseases of cattle (Prof. J.F. Edwards, Texas); Skin diseases of livestock in Africa (Prof. O. Bwangamoi, Harare).

Registration and fees
Staff members of veterinary institutes and graduate students from Southern and Eastern African countries are specifically invited to attend this symposium. They do not have to pay registration fees.
Registration fees for members from outside the Southern and Eastern African region are for members US$ 180; non members have to add $75 for 1997 membership. Deadline for application is 1 August, 1997. Registration forms can be obtained from: Dr. Samuel Thompson, National Programmes Director, C.L. Davis DVM Foundation, 6245 Formoor Lane, Gurnee, Illinois 60031, USA (tel.: +1.847.367.4359). Accommodation has to be reserved by the participants directly at the Organizational Training and Development Centre, St. Lucia Park, Crichton Avenue, Harare, Zimbabwe (tel. +263.4.30109, telefax: +263.-4.301989). Single and double rooms are available at a daily rate per person of US$ 50 for dinner, bed and breakfast.

RECENT PUBLICATIONS 22

The section RECENT PUBLICATIONS is included in the English issues of EQUATOR. Scientific publications of the Faculty of Veterinary Medicine and other research institutes in The Netherlands, relevant to livestock production and health in the tropics as well as titles of papers by Dutch veterinary scientists working on animal health and production topics in relation to developing countries, will be included. Please inform the editor of your publications so we can bring them to the attention of the readers of EQUATOR. For reprints contact the authors directly, their addresses can be obtained from the editorial office.

ANIMAL HEALTH

Uilenberg, G. (1996). Lutte intégrée contre les parasitoses animales tropical. Revue d'Elevage et de Médicine Vétérinaire des Pays Tropicaux 49: 124-129.

Uilenberg, G. (1996). Integrated control of tropical animal parasitosis. Tropical Animal Health and Production 28: 257-265.

ANIMAL PRODUCTION

Baars, R.M.T., Jong, R. de and Zwart, D. (1996). Cost and returns of the crop-cattle system in the Western Province of Zambia. Revue d'Elevage et de Médicine Vétérinaire des Pays Tropicaux 49: 243-250.

Buijtels, J.A.A.M., Huirne, R.B.M., Dijkhuizen, A.A. and Noordhuizen, J.P.T.M. (1996). Basic framework for the economic evaluation of animal health control programmes. Revue scientific et technique d'Office International des Epizooties 15: 775-795.

Klink, E.G.M. van, Corten, J.J.F.M. and Kalokoni, D.M. (1996). Herd monitoring in traditional cattle husbandry as a tool for productivity research and livestock development. Tropical Animal Health and Production 28: 273-279.

Schaik, G. van, Perry, B.D., Mukhebi, A.W., Gitau, G.K. and Dijkhuizen, A.A. (1996). An economic study of smallholder dairy farms in Murang'a District Kenya. Preventive Veterinary Medicine 29: 21-36.

Schilhorn van Veen, T.W. and Haan, C. de (1995). Trends in the organization and financing of livestock and animal health services. Preventive Veterinary Medicine 25: 225-240.

HELMINTH INFECTIONS

Moyo, D.Z., Bwangamoi, O., Hendrikx W.M.L. and Eysker, M. (1996). The epidemiology of gastrointestinal nematode infections in communal cattle and commercial beef cattle on the highveld of Zimbabwe. Veterinary Parasitology 67: 105-120.

Schallig, H.D.F.H., Moyo, D.Z., Hendrikx W.M.L. and Eysker, M. (1996). Bovine humoral immuno responses to *Haemonchus placei* excretory secretory antigens. Veterinary Parasitology 65: 289-296.

TICK-BORNE DISEASES, THEIR AGENTS AND VECTORS

Camus, E., House, J.A., Uilenberg, G. (Eds) (1996). Vector-borne pathogens: International trade and tropical animal diseases. STVM-95, San José, Costa Rica. Annals of the New York Academy of Sciences vol. 791 pp. 486.

Papadopoulos, B., Perié, N.M. and Uilenberg, G. (1996). piroplasms of domestic animals in the Macedonia region of Greece. I. Serological cross reactions. Veterinary Parasitology 63: 41-56.

Vliet, A.H.M. van, Zeijst, B.A.M. van der, Camus, E., Mahan, S.M., Martinez, D. and Jongejan, F. (1996). Recombinant expression and use in serology of a specific fragment from *Cowdria ruminantium* MAP1 protein. Annals of the New York Academy of Sciences 791: 35-45.

TRYPANOSOMOSIS

Dwinger, R.H. (1997). The use of an immunoassay method to improve the diagnosis of African trypanosomosis and its application to monitor disease control programmes: A summary. In: Application of an immunoassay method to improve the diagnosis and control of African Trypanosomosis. Proceedings of a Workshop on epidemiological tools for monitoring trypanosomosis and tsetse control programmes. Addis Ababa, 17-28 April, 1995, IAEA Tecdoc-925, Vienna. pp. 7-10.

Dwinger, R.H., Rebeski, D. and Winger, D. (1997). Improvements on an ELISA to detect trypanosomal antigens and its use as a monitoring tool in tsetse and trypanosomosis control programmes. In: Application of an immunoassay method to improve the diagnosis and control of African Trypanosomosis. Proceedings of a Workshop on epidemiological tools for monitoring trypanosomosis and tsetse control programmes. Addis Ababa, 17-28 April, 1995, IAEA Tecdoc-925, Vienna. pp. 11-14.

CALENDAR

Bornholm, Denmark
22 - 24 May, 1997
XVIII Symposium of the Scandinavian Society for Parasitology, with a special mini-symposium on Human and Veterinary Tropical Parasitology. Information: Secretariat of Symposium Bornholm, Danish Bilharziasis Laboratory, Jaegersborg Allé 1D, DK-2929 Charlottenlund (Tel.: +45.39.626168; telefax; +45.39.626121).

Barneveld, The Netherlands
16 - 27 June, 1996
3rd Course on: Artificial insemination in pigs. Subjects: Collection of semen; Evaluation and processing of semen in the laboratory; Insemination and sow production control; Organization of an AI station and Selection of breeding stock. Fees including board and lodging: Dfl. 5,000. Information: IPC Livestock Barneveld College, Dep. of International Studies and Cooperation Programmes, P.O. Box 64, 3770 AB Barneveld (Tel.: +31.342.414881, telefax: +31.342.-492813, e-mail: io@ipcdier.hacom.nl).

Sun City, South Africa
10 - 15 August, 1997
16th International Conference of the World Association for Advancement of Veterinary Parasitology (WAAVP). Organized by: Parasitological Society for the Advancement of Southern Africa. Information: 16th WAAVP Conference, Event Dynamics, P.O. Box 567, Stathaven, 2031, South Africa (Tel.: +27.11.-8836155, telefax: +27.11.8839643).

The Hague, The Netherlands
24 - 29 August, 1997
World Congress on Food Hygiene and 12th International symposium of the World Association of Veterinary Food Hygienists. Congress theme: Healthy animals, healthy food, healthy consumers. Information scientific programme: Prof. Dr. J.G. van Logtestijn, Drieklinken 63, NL-3972 EC Driebergen. Information and registration: Royal Netherlands Veterinary Association, Mrs. D. Raasing, P.O. Box 14031, NL-3508 SB Utrecht (Telephone: +31.30.2510111, telefax: +31.302511787, e-mail: knmvd @pobox.ruu.nl).

Acapulco, Mexico
6 -12 September, 1997
7th International Theriological Congress (7ITC) and Symposium on 'Veterinarians in conservation biology'. Organized by: World Association of Wildlife Veterinarians. For information about and contributions to the symposium contact: Dr. A.W. English, University of Sidney, Department of Animal Health, Private Mailbag 3, Camden, NSW 2579, Australia (Telefax: +61.46.552931).

Harare, Zimbabwe
8-10 September, 1997
Southern and Eastern Africa Veterinary Pathology Symposium. Organized by: Charles Louis Davis DVM Foundation in cosponsorship with the Faculty of Veterinary Science of the University of Zimbabwe. Location: The Organisational Training and Development Centre, St. Lucia Park, Crichton Avenue, Harare. Registration closing 1 August, 1997. Information and Registration: C.L. Davis DVM Foundation, Dr. Samuel Thompson, National Programmes Director, 6245 Formoor Lane, Gurnee, Illinois 60031, USA. (Tel.: +1.847.3674359). For more information see elswhere in this EQUATOR.

Puna, India
4 - 6 November, 1997
International Conference on Ethno-veterinary Medicine: Alternatives for livestock development. Organized by: BIAF Research Development Foundation. Call for papers, posters etc. is open with a deadline of 30 July, 1997. Last date for registration: 30 September, 1997. Information and registration: Dr. D.V. Rangnekar, BIAF Research Development Foundation, P.O.B. 2030, Mafatla Industries Compound, Asarwa, Ahmedabad - 380016, India (Telefax: -91.79.2123045, e-mail: biaf.ahm@lwahm.nandanet.com).

Utrecht, The Netherlands
28 November, 1997
8th International symposium: Tropical Animal Health and Production. Theme: 'Aquaculture and disease control'. Organized by the Committee for the Advancement of Tropical veterinary Science (CATS) and the Office for International Cooperation of the Faculty of Veterinary Medicine of Utrecht University. Registration before 15 November, 1997 to Office for International Cooperation, Faculty of Veterinary Medicine. P.O. Box 80.163, 3508 TD Utrecht (Telefax: +31.30.2531815, e-mail bic@bic.dgk.ruu.nl).

Berlin, Germany and Addis Ababa, Ethiopia
January, 1998 - December, 1999
Master of Science Training Course in 'Tropical Veterinary Epidemiology' for veterinarians from developing countries. Organized by: veterinary faculties of the Free University of Berlin and Addis Ababa University. Programme includes one year of course work, exams and research participation in Berlin and one year of applied research, short training courses and workshops in Addis Abeba. Subject: modern concepts in population medicine for the improvement of the health status of animal populations. Tuition fees: US$ equivalent of DM 29,200.
Deadline for application for DAAD scholarships 31 August, 1997. Closing date for registration: 30 September, 1997. Information and registration: The Coordinator, Freie Universität Berlin, Postgraduate Studies in Tropical Veterinary Medicine, Luisenstrasse 56 D-10117 Berlin
(Telephone: +49.30.20936063, telefax: +49.30.209 36349, e-mail: TropVet@city.vetmed.fu-berlin.de, http:\\www1.vetmed.fu-berlin.de).

Oenkerk, The Netherlands
12 January - 10 July, 1998
11th International Course on Dairy Husbandry and Milk Processing. Programme: Dairy development, Animal husbandry, Milk processing, Teaching and extension, Dairy farm management, Small-scale milk processing. Closing date: 1 October 1997. Information and application: IPC Livestock, Dairy Training Centre Friesland, P.O. Box 85, 9062 ZJ Oenkerk (Tel.: +31.582561562, telefax: +31-.582561628, e-mail: ipcdiero@pi.net).

Bangalore, India
22 -27 February, 1998
Second Pan Commonwealth Veterinary Conference on 'Animal health and production in rural areas. The essential role of women at all levels'. Topics: Animal Production (cattle, buffalo, sheep, goats, pigs, equines, camels, elephants, ostriches, transport and draft animals, embryo transfer); Animal Health (animal health of domestic and companion animals, emerging and reemerging diseases, animal nutrition, vaccine production) and Veterinary Education (reciprocity in Commonwealth, assessment, extension training, continuing education and distance learning). Information: Organizing Secretary, 123, 7th 'B' Main Road, IV Block (West), Jayanagar, Bangalore--560011 (Tel.: -91.80646857, telefax: +91.806635210, e-mail: rahman.cva@sm4.sprintrpg.ems.vsnl.net.in).

Harare, Zimbabwe
14 - 18 September, 1998
IX International Conference of the Association of Institutions of Tropical Veterinary Medicine (AITVM). Organized by: Faculty of Veterinary Science, University of Zimbabwe, P.O. Box MP 167, Harare. Location: International Conference Centre, Harare.

EQUATOR

NEWSLETTER ON VETERINARY ASPECTS OF INTERNATIONAL DEVELOPMENT COOPERATION

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VOLUME 9,1997

FROM THE EDITOR

In 1973 the Association of Institutes of Tropical Veterinary Medicine - (AITVM) was established on the initiative of Prof. Robertson of the Center of Tropical Veterinary Medicine (CTVM) in Edinburgh (UK). It was an association of institutes located in Europe, Australia and the USA which had strong links with institutes in developing countries. The last years the institutions in Australia and USA were no longer actively participating, and institutes from Africa and Asia became members or associated members.
The main activity of AITVM is the organization of a conference every 3 years on 'Livestock Production and Diseases in the Tropics'. In the last 25 years the AITVM has been the organiser of 8 conferences. These conferences bring together 200-300 participants from on average 40-50 countries. These include veterinarians, animal scientists and representatives of livestock ministries and research and development organizations

One of the founding members of AITVM in 1973 was Prof. Dr. Dik Zwart of the Fa-culty of Veterinary Medicine of Utrecht University. After his retirement in 1995, his place on the Standing Committee was allocated to Dr. Robert W. Paling, the Head of the Office for International Cooperation of the Utrecht Faculty of Veterinary Medicine and editor-in-chief of EQUATOR.

During the Standing Committee meeting in May at CIRAD/-EMVT in Montpellier (France) it was decided that AITVM membership is open to all Universities and Institutions which are active in the field of tropical animal health and production. Exchange of information between AITVM and member institutes is one of the activities.

From now on you will be able to read more about AITVM in EQUATOR as in each issue one page will be allocated to news from the association. Apart from making one page available to AITVM, about 50 faculties and institutes were added to the mailing list of EQUATOR. Bringing the total number of subscriptions to almost 1300. These institutions were selected from the list of participants of the last AITVM Conference in Berlin. In order to reach a wider readership, EQUATOR is addressed to the Deans or Directors of the respective institutions. Of course we count on their interest and readiness to bring EQUATOR, and **'FROM THE AITVM'** to the attention of their staff members.

"Towards disease control in the 21st century"

INTERNATIONAL SYMPOSIUM ON THE DIAGNOSIS AND CONTROL OF LIVESTOCK DISEASES USING NUCLEAR AND RELATED TECHNIQUES

An international symposium on diagnosis and control of livestock diseases using nuclear and related techniques was held at the International Atomic Energy Agency (IAEA) in Vienna, Austria from 7-11 April 1997. A total of 33 invited speakers presented lectures on a wide variety of topics dealing mostly with novel diagnostic techniques and disease control methods. The emphasis was on the expected changes in the field of animal health as we approach the next century. A total of 114 participants from 49 countries were able to attend the symposium. A large number of the participants (60) originated from developing countries. Their participation was financially supported by the Food and Agriculture Organization (FAO) and IAEA. A total of 37 scientific posters with details of applied research was presented by the participants.

Animal Production and Health (APH) Sub-programme

The opening lecture by M. Jeggo and J. Crowther detailed the activities of the Animal Production and Health (APH) Sub-programme of FAO/IAEA, which organized the symposium. At present the Section devotes 40% of its resources to animal production topics, 50% to animal health and 8% to veterinary drug residues with the initiation of an external quality assurance programme dealing with each of the subjects. During the past ten years enzyme-linked immunosorbent assays (ELISA) have been introduced by the APH Section to many veterinary laboratories in developing countries initially for disease diagnosis, and lately also for monitoring disease control programmes such as the rinderpest eradication campaign in Africa. In the next few years global approaches to disease control will become more prominent and an external quality assurance programme for individual tests and laboratories will become essential as an initial step for laboratory accreditation and promoting international trade.

ELISA technology

R. Jacobson of Cornell University (USA) outlined the historical aspects of ELISA technology and the most frequent mistakes made when performing the test. He emphasized the importance of standardization and the use of standard protocols and manuals as provided with FAO/IAEA ELISA kits. He foresaw the continued use of ELISA, but in a faster, cheaper and easier format, possibly using competitive assays more frequently and membranes replacing plates.

J. Anderson of Pirbright Laboratories (UK) outlined the history, clinical signs and immunology of rinderpest and emphasized the novel approach by the IAEA of technology transfer consisting of multinational training courses, provision of standardised kits, *in-situ* training, continuous technical backstopping, rapid incorporation of improvements and annual coordination meetings. In addition to the antibody- and antigen-detection ELISA distributed by the APH Subprogramme, he described a pen-side test, which rapidly detects antigen in eye swabs. This will become important for disease surveillance once vaccination against rinderpest has ceased (as is happening in West Africa).

K. Nielsen of Agriculture Canada discussed the mistakes and successes made over the years in developing an ELISA for brucellosis. A competitive ELISA has recently been developed, which can distinguish vaccinated from non-vaccinated animals.

A. Luckins of the CTVM in Edinburgh (UK) talked about *Trypanosoma evansi* infections in cattle and buffaloes in Southeast Asia. Although the disease is

The UN buildings in Vienna Head Quarter of the International Atomic Energy Agency (Photo: Dwinger)

United Nations buildings in Vienna where the IAEA Haed Quater is located (Photo: Dwinger)

not a serious problem, it does cause an important decrease in productivity and draught power. The performance of an antibody- and antigen-detection ELISA was reported. The diagnostic sensitivity of the test varied between animals and at different times during infection. However, such a far from perfect ELISA is still useful for gathering epidemiological information, monitoring vector control programmes and assessing the effectiveness of chemotherapy.

N. Ferris of Pirbright explained the epidemiology and diagnosis of foot-and-mouth disease. At present a liquid-phase blocking ELISA to detect antibodies and an antigen-detection ELISA are available. An ELISA based on non-structural proteins of the virus is under development in order to be able to distinguish vaccinated from infected and carrier from non-carrier animals. With the very sensitive polymerase chain reaction (PCR) one can detect evidence of virus in vaccinated animals. R. Jackman of Weybridge (UK) presented the various forms of homogeneous assays, which have the advantage that no washing steps are involved.

Other new technologies

I. Tothill of Cranfield University (UK) explained the multiple use of biosensors. These can measure a range of biological compounds (cells, enzymes, nucleic acids, antibodies, etc.) in different ways (optical, electrochemical, calorimetric, piezo-electric) and are used in medical diagnostics, environmental monitoring and food analysis among others. Practical applications are for example measuring antibiotic residues in milk, glucose levels in blood and food-borne pathogens.

Molecular technology

J. Reddington, a representative from an American business company, listed the advantages of pen-side diagnostic methods. Two review papers were given, one on the production of monoclonal antibodies and another one on the use of molecular diagnostic techniques. Researchers from the National Veterinary Institute in Sweden (K. Johansson and S. Belák) presented the use of PCR based diagnostic systems for the detection of the *Mycoplasma mycoides* cluster (causing contagious bovine pleuropneumonia and contagious caprine pleuropnemonia) and of viral infections causing pneumonia in cattle.

P. Majiwa of the International Livestock Research Institute (ILRI, Nairobi, Kenya), highlighted that species specific primers have been developed for use in the PCR to detect successfully trypanosomes in tsetse flies and bovine blood. Using this novel and sensitive technique mixed infections of *T. brucei*, *T. vivax* and *T. congolense* were found to be much more common than encountered previously using conventional diagnostic techniques.

N. Knowles of Pirbright discussed the molecular techniques used to diagnose FMD and to elucidate its epidemiology by defining topotypes, producing a genome map of the virus and study the evolution of the virus over the years. T. Barrett from the same institute told the audience an interesting story about recent outbreaks of morbilliviruses in cattle (causing rinderpest) and dolphins. Conventional and recombinant vaccines are available against rinderpest and are being used as part of the strategy to eradicate the disease.

Control programmes and training

G. Uilenberg, the former director of research of IEMVT (France) and former Professor in Tropical Veterinary Medicine at Utrecht University (the Netherlands), gave a review of tick-borne diseases control methods. The occurrence of acaricide resistance and the lack of incentive for the industry to develop new acaricides has emphasized the necessity of integrated sustainable control involving chemical tick control, immunological control (i.e. the infection and treatment method), use of genetic resistance of indigenous breeds, drug treatment and sanitary control and surveillance.

R. Sinden of Imperial College (UK) reviewed vaccine technology in general and gave an example of the use of transgenic insects as a vehicle of vaccine delivery.

G. Viljoen of the Onderstepoort Veterinary Institute (South Africa) talked about the regulation of gene expression in mammalian cells and M. Thrusfield of the University of Edinburgh explained the principles of veterinary epidemiology. He emphasized the importance of providing appropriate training to scientists from developing countries, a point which was later expanded by M. Coetzer, who gave examples of the many training possibilities available from the Department of Veterinary Tropical Diseases, University of Pretoria, South Africa.

Quality control

J. Kramps of ID-DLO in Lelystad (the Netherlands) described the details of an external quality control programme running in veterinary diagnostic laboratories in the Netherlands since 1992. B. van der Eerden of FAO/IAEA on her part described the successful management of a similar programme for the FAO/IAEA Subprogramme in animal health involving rinderpest, foot and mouth disease,

brucellosis and trypanosomosis in developing countries. M. Jeggo of the APH Subprogramme explained the present status of the Pan African Rinderpest Campaign (PARC), the establishment of disease surveillance systems in Africa and the two funding systems by which the IAEA can assist developing countries. The mechanisms of assistance provided to scientists from developing countries by the International Foundation for Science in Sweden were explained by C. Arosenius. J. Hilton of the Telos group based in the United Kingdom showed examples of teaching material on various important veterinary diseases available on CD-ROM.

Geographical information systems

T. Ndegwa (FAO/IAEA) explained the establishment of a geographical information system (GIS) facility at the IAEA and its application for depicting the distribution of theileriosis, trypano-somosis, rinderpest and changes in land use patterns.

Impressive results have been achieved by D. Rogers of Oxford University (UK) to predict the distribution of tsetse flies in Africa using satellite imagery. His co-worker, T. Robinson, showed the practical applications of GIS in relation to tsetse and trypanosomosis control in southern Africa. P. Mellor of Pirbright gave an interesting talk on the impact of climatic change on vector-borne diseases. It was shown that higher ambient temperatures can promote disease transmission and survival of the vector of African horse sickness, *Culicoides imicola*, and thus transform the southwestern part of Europe into a potential enzootic area of the virus.

The systems' approach

A. Dijkhuizen of the Agricultural University Wageningen (the Netherlands) discussed the various modelling techniques used in animal health economics. He stressed the importance of cost/benefit analysis for choosing the most appropriate control strategy to contain highly contagious diseases such as a potential foot and mouth disease outbreak in the Netherlands. D. Zwart, former Professor in Tropical Veterinary Medicine at Utrecht University, showed the mistakes made in Dutch agriculture and indicated how to address sustainability issues in developing countries properly.

S. Edwards explained the regulatory role of the Office International des Epizooties (OIE, Paris, France) in setting standards in trade in animals and animal products.

Conclusion

The impact of the above mentioned presentations and the informal discussions were assessed and summarized by P. Roeder of FAO (Rome, Italy). The symposium was clearly a great success and highlighted new technological innovations that can assist disease control and eradication in livestock in the next century.

Dr. R.H. Dwinger, FAO/IAEA

(Availability of the proceedings of this symposium will be announced in EQUATOR, ed.)

FROM THE

THE ASSOCIATION OF INSTITUTIONS OF TROPICAL VETERINARY MEDICINE (AITVM)

The Association of Institutions of Tropical Veterinary Medicine (AITVM) was established in 1973 and is presently composed of eleven institutions from Europe, Africa and Asia. The activities of the Association are organised by a Standing Committee consisting of representatives of the member institutions. Membership of AITVM is open to all Universities or Institutions which are active in the field of tropical animal health and production.

AITVM's mission

To improve human health and quality of life by means of increased food production in tropical regions through enhancement of research, training and education in veterinary medicine and livestock production within the framework of sustainable development.

AITVM

Activities of AITVM

- to facilitate and stimulate international collaboration
- to promote and co-ordinate research and training in animal health and production in the tropics
- to inform policy makers of current and future strategies in animal health and production research for sustainable rural development
- to organise international conferences at regular intervals on themes concerning livestock in the tropics.

Amongst others, the association has organised eight International Conferences on Tropical Animal Health and Production in Scotland (Edinburgh, 1973), in West Germany (West Berlin, 1976), in Kenya (Nairobi, 1980), in Florida, USA (Kissimmie, 1983), in Malaysia (Kuala Lumpur, 1986), in the Netherlands (Wageningen, 1989), in Ivory Coast (Yamoussoukro, 1992) and in Germany (Berlin, 1995).

Announcement of the ninth AITVM Conference

The next AITVM-Conference will be held in Harare (Zimbabwe) from 14th - 18th September 1998. The 1998 Conference is focussed on: **Animal health and production in development** with particular reference to:

- the needs for regional integrated

animal disease control
- domestic animal and wildlife resource management
- increasing efficiency of public and private livestock health delivery systems
- veterinary health and food safety
- re-orientation of the veterinary curriculum.

Rural development, community participation and the environment will form important aspects of the topics for discussions in plenary sessions as well as in workshops.

It is anticipated that the Conference will provide another effective forum for scientists of tropical animal health and production and key persons from developing and developed countries to link together efforts for integrated approaches promoting animal health and production in the context of development. The Conference will offer the opportunity for information on new developments, on problem analysis, identification of requirements for future strategies and concepts for exchange of experiences and proposals between representatives from developing countries, agencies for technical co-operation and scientists.

Information

For more information you are invited to contact:

For the 9th Conference: Prof. M. J. Obwolo, Faculty of Veterinary Science, University of Zimbabwe, P.O. Box MP 167, Mount Pleasant, Harare, Zimbabwe (Fax: +263.4.333683, e-mail: vetscience@esanet.zw)

For the AITVM in general: Prof. D. Mehlitz, Secretary AITVM, Freie Universitaet Berlin, Tropical Veterinary Medicine, Koenigsweg 67, 14163 Berlin, Germany (Fax: +49.30.81082323, e-mail: TropVet@city.vetmed.fu-berlin.de).

MYTHS IN LIVESTOCK DEVELOPMENT

It is often stated that livestock can play a fundamental and catalytic role in rural development of developing countries. However, only few livestock development projects have succeeded in meeting their objectives. Livestock technologies have had very little impact on production and productivity at farm level. To be able to understand some of the reasons for this, we might have to reconsider some of the concepts underlying livestock development. In this address, I will emphasize some of the changes in considering livestock development. For this purpose, 13 myths in livestock development are formulated. The past two years, seven PhD-theses on topics related to livestock in tropical production systems have been defended at Wageningen Agricultural University. To discuss the myths some of the findings of these theses and parts of our other research are combined with general impressions on tropical livestock.

1. The world population is rapidly increasing, so we have to produce more animal products

International conferences, FAO reviews and textbooks on livestock development often open with the statement that we have to contribute to higher livestock production in order to be able to feed the growing population. Last year I was in Berlin for the conference of the Association of Institutions of Tropical Veterinary Medicine on Livestock Production and Diseases: Livestock Production and Human Welfare. Three out of the seven keynote papers started with this problem of population growth and the resulting need for more animal products.

Animal protein is not the first necessity of life. So, the protein gap is less relevant if we want to provide food for the ever-growing population, and if we consider the 800 million people suffering from hunger, animal protein is not relevant at all! The world food problem is an energy (carbohydrates) gap problem. The consumption of animal protein is very much related to economic development.

I regret that we, animal production people, use the population growth as an excuse to continue with what we are doing. We should not justify the relevance of livestock with false arguments.

2. Intensification of animal production will improve the nutritional status of the population

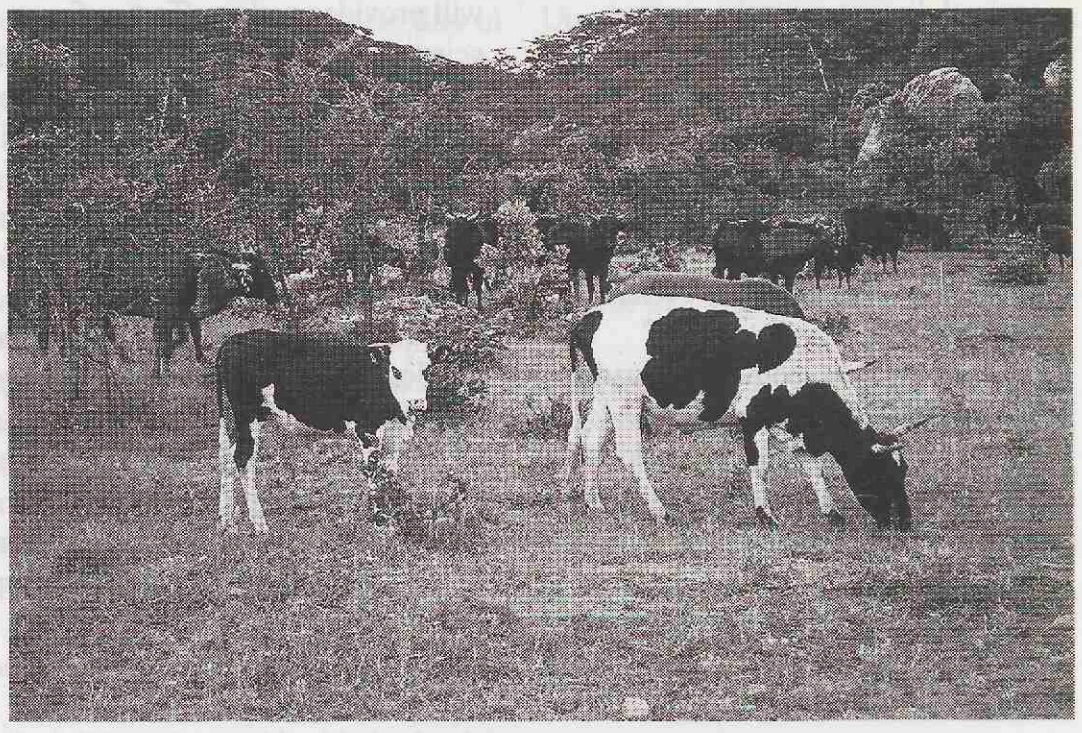
It is also a myth to claim that intensification of animal production will improve the nutritional status of the rural population. If farming households invest in their animals they will be very reluctant to eat their own products, except on special occasions or when they cannot sell their produce.

For example, staff members of the Animal Husbandry Faculty of the Brawijaya University in Indonesia and I once visited a farmer who had received two HF cows via a government credit scheme. He was the only dairy farmer near a particular small town. He could sell his milk at a good price to people coming to his farm to collect milk. And, of course, we wanted to give this farmer some proper advice. I asked him 'what is your biggest problem' and he answered 'that we sometimes have to drink our own milk, there are days that nobody comes to collect milk'. And there we were, this problem we could not solve.

Another example is village egg production units. When village farmers change to commercial poultry keeping, be it on a small-scale (100-500 birds), they have to invest in, for instance, building materials, day-old chickens, feed, and drugs. So, they have to sell all the eggs produced to recover their investments. Maybe, on special occasions they will use some eggs for baking cakes.

Livestock provides more than only food; for example, draught power, manure, fibres. And a very important motive for keeping livestock is the function of capital asset.

I will give two examples. First, goat



In the sixties and seventies bilateral and multilateral livestock projects usually included Friesian cows (Photo: Paling)

keeping in South-Western Nigeria. Here we worked together with agricultural economists in a goat improvement programme. The economists wondered why farmers kept goats anyway, because the financial returns from goats to labour were far below the returns from cocoa or even cassava. But the goats enable farming households to meet unexpected expenditures. How to value this? Again, together with an economist, we developed a concept to value the insurance (the capital invested in the flock is a guarantee of meeting future requirements, for which an insurance premium must be paid in situations where an insurance market exists) and financing (the selling of animals, if and when required means that financing through formal and informal agents can be avoided, which implies a saving on transaction costs) functions of livestock. For goat keeping in Nigeria these functions were 4 times more important than the meat production function. Now, the benefits from goats per unit of labour were comparable to the benefits from crops per unit of labour. In the second example, on the role of cattle in mixed farming systems in East Java, Indonesia, we came to the same conclusion. Here per unit of labour were comparable to the benefits from crops per unit of labour. In the second example, on the role of cattle in mixed farming systems in East Java, Indonesia, we came to the same conclusion. Here you see the relative importance of the various functions of keeping cattle in this marginal area in Indonesia:

- progeny	$$$$
- manure	$$
- insurance	$$
- financing	$
- draught	$
- weight gain	$

The various goals can even be conflicting. Selling an animal for urgent cash needs (a new roof for the house, a household member hospitalized, a wedding, etc.) may not coincide with the optimal moment from a meat production or breeding perspective.

Research, development, education and training are almost exclusively focused on biological production. The intermediate (manure, draught power) and intangible (finance and insurance) benefits, on the other hand, are very much neglected, while all these benefits support human welfare. This is what motivates farmers to care for their animals. This is what should motivate us!

What we need is a broad perspective on livestock keeping. The farmer has to balance the sometimes conflicting goals of the livestock sub-system within the context of the farm system and the socio-economic and ecological environments. And it is very important to realize that any intervention is bound to have repercussions elsewhere. In contrast to crops, the socio-economic environment has relatively more impact on livestock than the ecological environment (Figure 1).

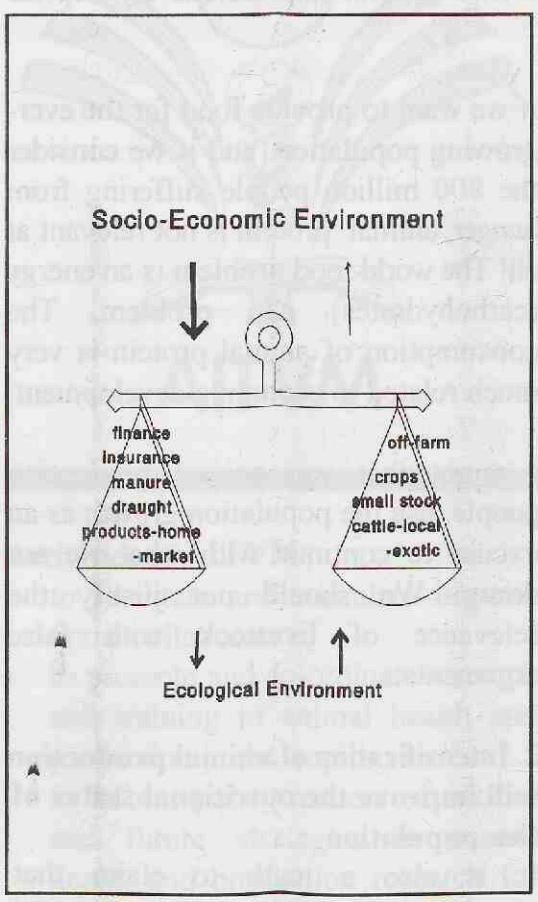


Figure 1: Balancing livestock systems

3. Animals and technologies from industrialized countries offer great opportunities to increase animal production in developing countries

All international platforms agree that it is a myth to think that animals and technologies from industrialized countries can contribute much to livestock keeping in developing countries. In the sixties and seventies bilateral and multilateral livestock projects usually included Friesian cows or other exotic stock, AI, milk recording and progeny testing, and/or building up an infrastructure with slaughterhouses, feedmills and dairy factories. The breeding programmes did not fit in local small-scale farming conditions and the infrastructures were oversized, overstaffed, over-equipped and under-utilized. As a consequence, development funds are no longer used for such activities.

In national livestock development plans, it is often claimed that local stock and production systems have a low productivity and that introduction of 'improved' stock is considered. First, productivity refers to Output over Input. Animals or systems with hardly any inputs cannot be described as showing a low productivity. Second, are all benefits included? I think that the arguments given so far underline that this statement is a myth. In the nineties, in Eastern Europe and the former

Soviet republics exactly the same mistakes are made as we made in the sixties and seventies in developing countries.

4. Animals need favourable environmental conditions to express their genetic potential

As a result of the failures of the traditional breeding activities in developing countries, livestock development experts often claim that environmental constraints should be removed first before attention is paid to breeding because 'only under favourable environmental conditions can animals express their genetic potential'. It is a myth to think that genetic potential is a single magic upper limit of the performance of animals. There are many areas where the environmental constraints cannot be removed. We have to make use of the between animal or breed variation to match animals to environments. This usually implies that we have to place more value on the merits of local genetic resources. A good example is the current interest in trypanotolerant livestock in tsetse-infested areas in Africa.

5. Technical innovations are the prime movers for higher animal production

It is a myth to think that technical innovations are the prime movers for higher animal production levels. We have studied low external input livestock systems in Nigeria, Bangladesh and Indonesia. A general finding is that farmers are doing the best they can given their limited resources. This does not preclude that technical competence varies among farmers. Livestock systems are not static either. They change in response to changes in the prime movers: land use (influencing the feed resource base and the functions of livestock) and the non-agricultural sector (influencing the demands and therefore the functions of livestock and the availability of (cash) resources).

This year, one of our former staff members completed a PhD on dairy development under a wide range of production conditions. He concluded that for dairy development producer-friendly policies (price and investment support) are more important than technology development. Some of his other conclusions are that:

- the high requirements as to investment and labour in dairy farming and the low financial returns limit the number of cows kept per farm and favour small units with sufficient family labour
- (para)statal farms cannot supply enough F_1 animals or purebreds without external supply
- the long-term sustainability of dairy systems is questionable in both industrialized and developing countries.

6. Dairy development can be left to a free market system

Based on this extensive work on dairy development we can conclude that it also is a myth to believe that dairy development can be left to a free market system as preached by donor agencies. A free market system will favour the strongest commercial units and the economically strongest regions or countries. There are always winners and losers.

7. Increased use of crop residues will increase animal production levels

In many regions the grazing areas are disappearing or have disappeared. Thus, ruminants have to rely more on crop residues and forage from road-sides and other marginal lands. The adagium in policy statements on ruminant feeding strategies seems to be 'how to make better use of the low quality feed resources?'. For decades much research has been dedicated to supplementation and/or chemical treatment of such low quality feeds. However, at farm level these technologies have hardly made any impact.

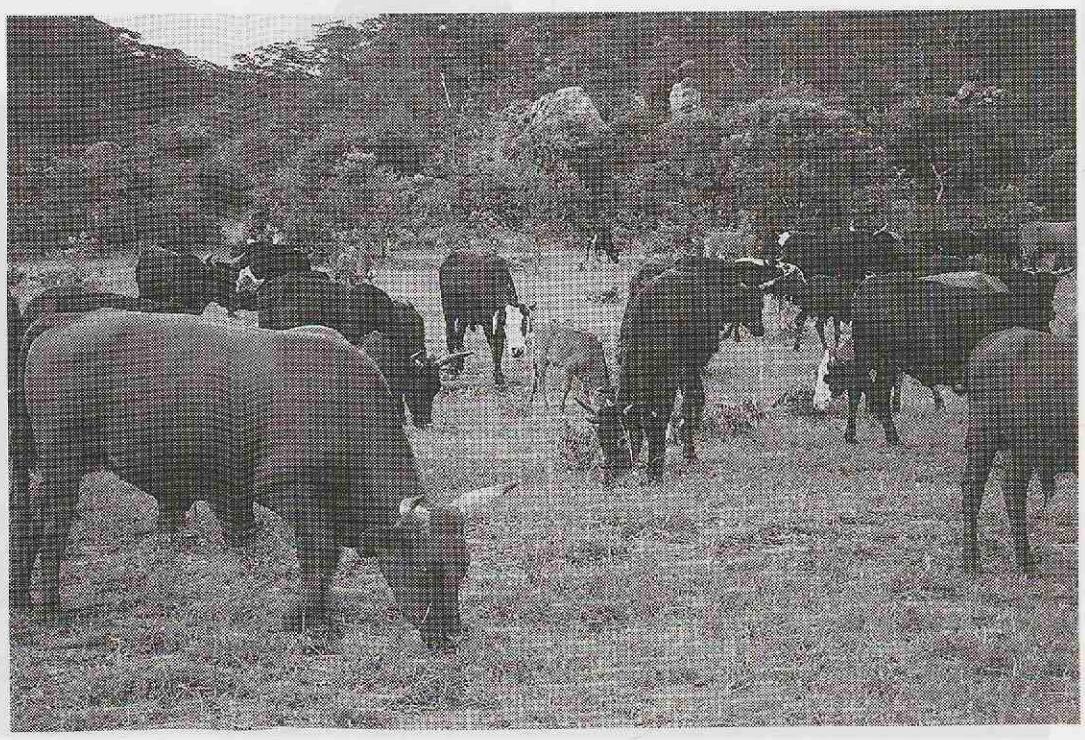
Poor quality feeds cannot contribute to higher meat and milk production. Physical production can only be increased when we make less use of the poor quality feeds and increase the supply of higher quality feeds (concentrates, leguminous tree leaves). When the intermediate products (manure, draught power) and the intangible benefits are important objectives of livestock keeping, then more of the poorer feeds can be used. Supplements (concentrates, legumes, treatments) are too costly, too labour-intensive, not sufficiently available, or better used as fertilizer or as feed for monogastrics.

When we are going to promote dairying we can only use the better quality feeds. This could lead to marginalization of other farmers.

There are thousands of publications on trials with individual feeds. Waste of time and money! In such trials these feeds are isolated from other feed resources and the actual production systems. The starting point in ruminant feeding strategies should be an analysis of the total feed resource base and the objectives of the production system.

8. Dry (poor) season feeding strategies are needed

For decades animal scientists from all over the world have been promoting dry (poor) season feeding strategies, such as



There is a growing concern about soil degradation and soil mining in certain livestock production systems (Photo: Paling)

supplementation. However, farmers have never used our strong recommendations. They prefer to feed their animals better during the good seasons. The phenomenon of compensatory growth has been known for a long time but we never took the step from physiological knowledge to practical farming. The farmers do! For example, ILCA (International Livestock Centre for Africa) introduced forage banks to be used for supplementing animals in the dry seasons. Farmers, however, used these forage banks in the productive season to get more milk and to get their cows pregnant.
This year one of our MSc alumni defended his PhD thesis on prospects of compensatory growth for sheep production systems. He concluded that for Iran, sheep production systems based on compensatory growth strategies were more productive in terms of money than intensive systems.

9. There are many improvements feasible for rural pig and poultry keeping

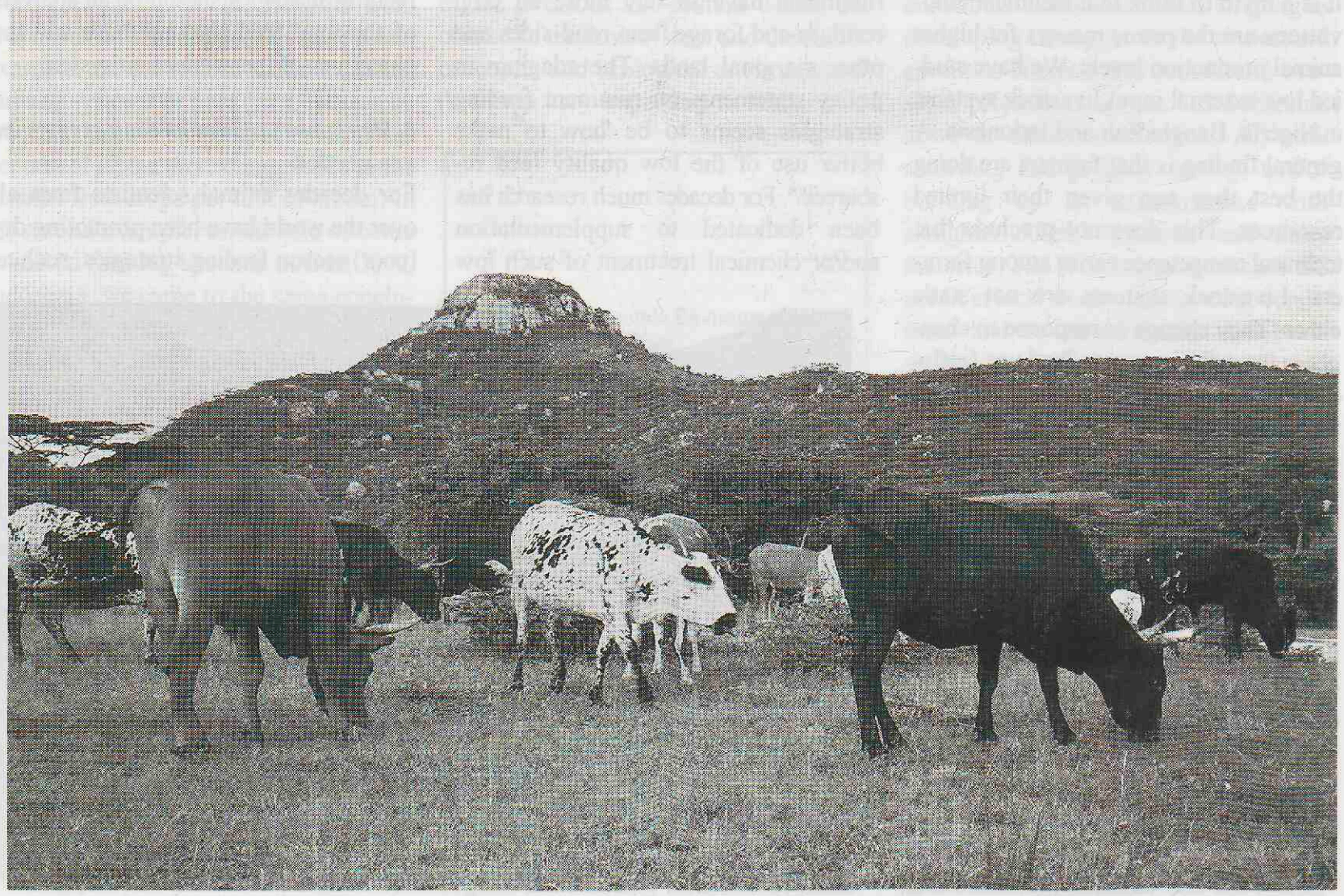
A myth held, in particular, by many NGOs (non-governmental organizations) is that there are many improvements feasible for rural pig and poultry keeping. Indeed, from a technical point of view there are many possibilities of increasing production in free-range or semi-commercial pig and poultry keeping. However, the inputs required and the increase in production imply that the farmers have to become more market-oriented, and have to compete with other small farmers and large-scale operators. The social role of pigs in various areas, although a very interesting function of livestock, might preclude any extra inputs for the animals. In poultry, it is relatively easy to establish small-scale commercial units; however, the major constraints are irregular supply of feeds and marketing. One 250-chicken unit can supply enough eggs for a village with 2000 people, provided these people have no chickens themselves. A second unit has to market their eggs already somewhere else.

I used to work in Samoa, in the Pacific. One of the livestock activities was establishing village layer units with 200 hens, organised by women committees. We started with two units and after three years there were already 40 units. We became a serious competitor for the few large-scale commercial farms and for ourselves. From a technical point of view we were very successful, but the market was glutted with eggs. And many of the ladies went out of business again.
Is there a middle course feasible between free-range systems, where animals have to fend for themselves, and large-scale commercial units?

10. Improved health care is a precondition for animal production

Last January I attended a workshop on possibilities of using educational modules of European universities for veterinary or animal production curricula of African Universities. Veterinarians in this meeting claimed that we should start with veterinary science modules, because without good health care no production. To me, this is a myth, with the notable exception for vaccinations against some highly infectious diseases in specific areas.

A very important motive for keeping livestock is the function of capital asset (Photo:Paling)



Let us again take trypanosomiasis as an example. Should we start with expensive veterinary control programmes in tsetse-infested areas or should we propagate the use of trypanotolerant animals? Why did the Northern Australian dairy farmers start with crossbreeding their Friesian or Jersey cattle with Tick borne disease resistant Sahiwals. Well, to reduce the use of acaricides.

One of our Tanzanian MSc-students compared production parameters for areas where cattle dips did not work properly and areas were dips were in full operation. He found that, in the year he did his research, the off take rate (a biological measure of productivity) was higher in the villages where dips were not used. His final conclusion was that farming households in villages with properly working dips were in a better financial position. Thus, they had also less need of selling stock and they could continue the dips. In the other villages farmers had to sell more animals because of urgent cash needs. Animal production, in terms of selling of animals, was not increased by improved health care. This example also shows that off take rate is not a proper indicator for measuring the impact of veterinary treatments in tropical livestock systems.

11. We, animal production people, should produce!

In Europe, there is an over-supply of animal products and we are very much concerned about the environmental pollution by livestock and about the welfare of animals in the factory-farming business of poultry, pigs, or veal calves. In livestock production systems in other agro-ecological zones there is a growing concern about soil degradation and soil mining. Hence, the sustainability of our livestock systems is very much under discussion.

Research, extension, education and training should support the multiple objectives of livestock that contribute to human welfare in general. More intensified livestock production and production for the market could be a means to reach this goal, it should never be the goal itself. Researchers, extension workers, educators and trainers should also be more concerned about the quality and relevance of their work than about the sheer number of publications, targeted farmers or programme participants.

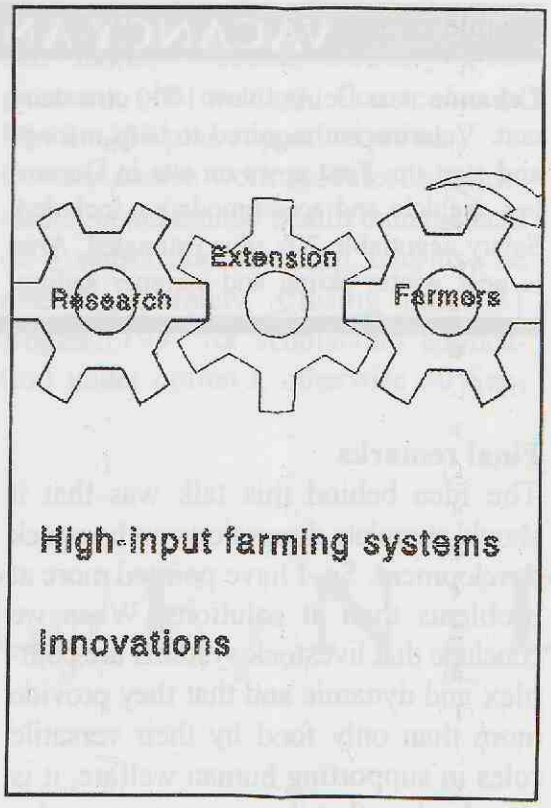


Figure 2: Ideal symbiosis Research, Extension and Farmers

12. Extension plays a major role in increasing animal production

I realize that it is dangerous to remark that it is a myth to believe that extension plays a major role in increasing animal production. The ideal symbiosis between Research, Extension and Farmers (Figure 2) can occur in high external input systems or when really new technologies are introduced. Nevertheless, in the Netherlands, the government is cutting down on extension service and I do not hear many protests from researchers or farmers.

In the tropics, we can find a wide range of production systems. The majority of the farmers can be found in low external input production environments. In such farming systems, Research, Extension, and Farmers can be found on their own white clouds (Figure 3). Research and Extension have hardly contributed anything useful to these production systems. We have produced interventions that farmers find unprofitable, too risky, too labour-intensive, or impossible to implement. Our first priority should not be to change production systems, we should first try to understand them. So, extension has to be re-oriented towards supporting rather than transforming existing systems. In modern extension language the clouds should be knowledge systems with two-way information avenues between them (Figure 4).

13. Research focused on production levels of individual animals will provide solutions to the sustainability problems we face

We should be engaged in livestock development
- without running out of non-renewable resources (think of our soils, drinking water, energy, biodiversity)
- without giving rise to unacceptable levels of pollution
- taking into consideration the needs and possibilities of future generations.

The traditional research approaches, clearly subdivided into their own disciplinary categories (animal breeding, health, and nutrition, or animal production, crop production, and farm management) are not equipped to tackle the sustainability problems we face.

The broad concept of sustainability calls for a systems approach. This is not a new science nor a new discipline. It is a distinctive way of looking at things. The central idea is that one must understand a system before one can influence it in a predictable manner. The relevance of interventions has to be assessed within the context of the farming system.

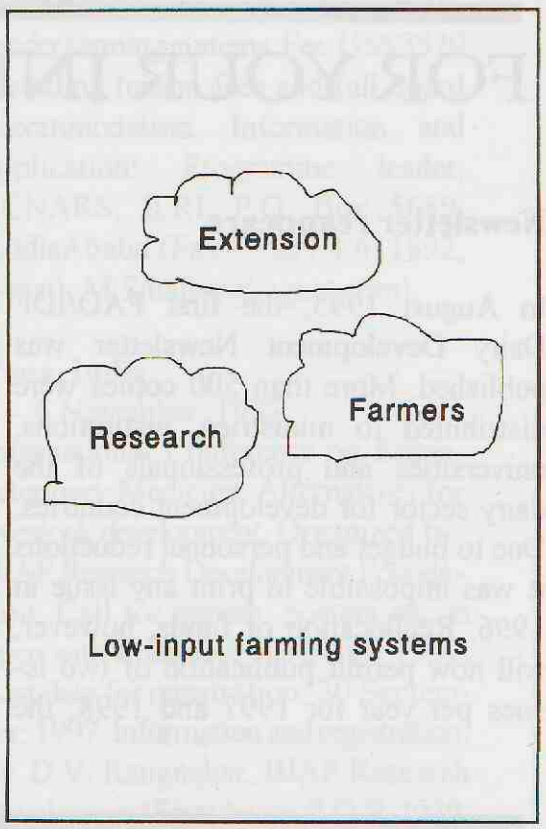


Figure 3: Isolated positions of Research, Extension and Farmers

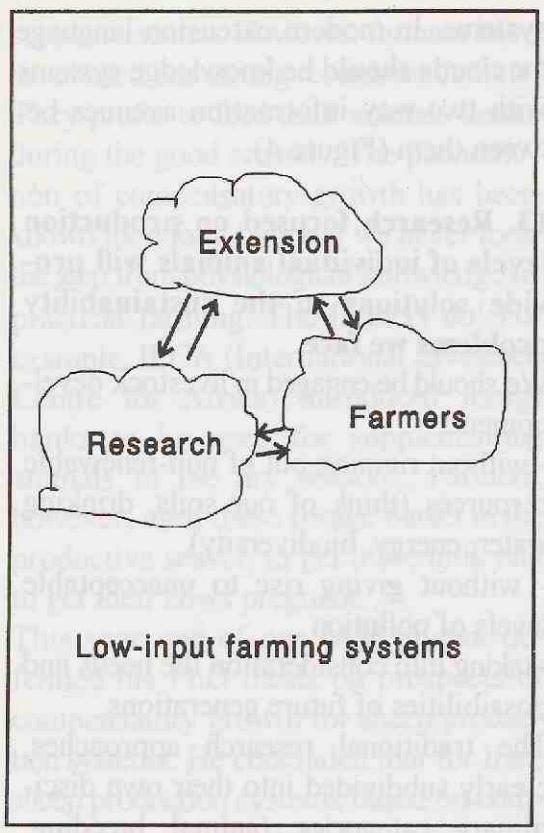


Figure 4: Two-way information avenues needed between Research, Extension and Farmers

VACANCY ANNOUNCEMENT

Lebanon near Beirut. New 1000 cow dairy unit. Veterinarian required to help manage and start-up. First cows on site in December. Vehicle and accommodation included. Salary negotiable 20k plus estimated. Area is near winter skiing and summer sailing. CVs to M. Mackendrick, 6 Moorland Parade, Upton, Poole BH16 5JS, UK.

(Copied from: the Veterinary Record of 10 May, 1997)

Final remarks

The idea behind this talk was that it should stimulate discussions on livestock development. So, I have pointed more at problems than at solutions. When we conclude that livestock systems are complex and dynamic and that they provide more than only food by their versatile roles in supporting human welfare, it is already clear that there are no easy solutions. The objectives in research, education, extension, and training should be set in relation to this broad perspective on livestock keeping. Well, researchers, extension workers, educators, trainers, farmers, let us accept that challenge!

Dr. Ir. H.M.J. Udo
Dept. of Animal Production Systems
Wageningen Agricultural University

(Address on the occasion of the 'Livestock Development Day' of the Netherlands Centres for Training in Animal Resources Management (N_CT_R), Oenkerk, October 1996; Previously published in the Livestock Newsletter of N_CT_R, Vol. 7 nr. 2 of November, 1996).

FOR YOUR INFORMATION 1

Newsletter reappears

In August 1995, the first FAO/IDF Dairy Development Newsletter was published. More than 500 copies were distributed to ministries, institutions, universities and professionals of the dairy sector for development countries. Due to budget and personnel reductions it was impossible to print any issue in 1996. Reallocation of funds, however, will now permit publication of two issues per year for 1997 and 1998; the first of these will be available in June.

The next issue of the Newsletter will cover: strategies for meat and milk distribution in big cities; technology development for milk collection, processing and marketing; milk producers' organizations for inputs and services; regional dairy information network programme; world and regional milk and dairy products outlook; and FAO and IDF meetings, workshops and publications.

The newsletter is distributed free-of-charge and people wishing to ensure that their names are registered on the mailing list should contact either of the following persons:

J.C. Lambert, Dairy Office, FAO/AGAP, Viale della Terme di Caracalla, 00100 Rome, Italy, or Ernest Mann, IDF, 41 Square Vergotte, 1030 Brussels, Belgium.

(Source: SPORE 68, April 1997)

FOR YOUR INFORMATION 2

MSc in Tropical Veterinary Epidemiology (1998 -99) at the Free University Berlin - Faculty of Veterinary Medicine

The MSc programme which is conducted in English runs from March 1998 and provides specialized training in epidemiology and preventive veterinary medicine. It comprises modular course work over 7 months (PC-operated data processing; veterinary epidemiology and statistics up to the advanced level; animal production and health planning and management in the (sub)tropics; livestock economics; zoonosis control and consumer protection aspects), followed by individual projects and thesis research work. Target group: young and mid-career veterinarians from (sub)tropical countries.

The programme offers three study options:

I. Sandwich programme between the FU Berlin and Addis Ababa University, Ethiopia (22 months plus 2 months introductory German language course), with a focus on East African countries and participants. Ten (10) scholarships are available, otherwise course fee of DM 29,200 plus stipend are required.

II. Berlin - Germany Programme

III. Berlin - Home Country Programme (18 months). Course fee of DM 29,200 plus stipend required.

Certain course work modules in epidemiology and animal health management of 4 weeks duration each, can also be elected separately. **Closing date**: 31 August, 1997 for scholarship application under option I, otherwise 30 September, 1997.

Further information and application forms: The Coordinator, Postgraduate Studies in Tropical Veterinary Medicine, FU Berlin, Luisenstrasse 56, D-10117 Berlin (Tel: +49.30.20936063, fax: 49.30.-20936349, e-mail: tropvet@city.vetmed.fu-berlin.de, web site: http: \\www1.vetmed.fu-berlin.de).

CALENDAR

Sun City, South Africa
10 - 15 August, 1997
16th International Conference of the World Association for Advancement of Veterinary Parasitology (WAAVP). Organized by: Parasitological Society for the Advancement of Southern Africa. Information: 16th WAAVP Conference, Event Dynamics, P.O. Box 567, Stathaven, 2031, South Africa (Tel.: +27.11.8836155, telefax: +27.-11.8839643).

The Hague, The Netherlands
24 - 29 August, 1997
World Congress on Food Hygiene and 12th International symposium of the World Association of Veterinary Food Hygienists. Congress theme: Healthy animals, healthy food, healthy consumers. Information and registration: Royal Netherlands Veterinary Association, Mrs. D. Raasing, P.O. Box 14031, NL-3508 SB Utrecht (Telephone: +31.30.2510111, telefax: +31.30-2511787, e-mail: knmvd @pobox.ruu.nl).

Acapulco, Mexico
6 - 12 September, 1997
7th International Theriological Congress (7ITC) and Symposium on 'Veterinarians in conservation biology'. Organized by: World Association of Wildlife Veterinarians. Information: Dr. A.W. English, University of Sidney, Department of Animal Health, Private Mailbag 3, Camden, NSW 2579, Australia (Telefax: +61.46.552931).

Harare, Zimbabwe
8 - 10 September, 1997
Southern and Eastern Africa Veterinary Pathology Symposium. Organized by: Charles Louis Davis DVM Foundation in cosponsor-ship with the Faculty of Veterinary Science of the University of Zimbabwe. Location: The Organisational Training and Development Centre, St. Lucia Park, Crichton Avenue, Harare. Registration closing 1 August, 1997. Information and Registration: C.L. Davis DVM Foundation, Dr. Samuel Thompson, National Programmes Director, 6245 Formoor Lane, Gurnee, Illinois 60031, USA. (Tel.: +1.847.3674359). For more information see EQUATOR no. 2 of March/April, 1997.

Edinburgh, UK
October, 1997
Start of modular MSc/MPhil courses in 'International Animal Health and Sustainable Development' and 'Veterinary Laboratory Science'. Organized by: University of Edinburgh. Information: The Director, Centre for Tropical Veterinary Medicine, Royal (Dick) School of Veterinary Studies, Easter Bush, Roslin, Midlothian EH25 9RG, (Tel. +44.131.6506289, fax: +44.-131.4455099, e-mail: Jeanette. MacDonald@ed.ac.uk, WWW: http: //www.vet.ed.ac.uk/ctvm).

Addis Ababa, Ethiopia
6 - 24 October, 1997
Training course on: 'Improving cattle traction, milk and meat production'. Organized by: International Livestock Research Institute (ILRI). Objective of the course: Provide an integrated approach to the use of cattle as multipurpose animals (traction, meat and milk) in mixed crop-livestock smallholder farming systems. Fee: US$ 3520 including tuition fees and full board accommodation. Information and application: Programme leader, SCNARS, ILRI, P.O. Box 5689, AddisAbaba (Fax: +251.1.611892, e-mail: M.Smalley@ cgnet.com).

Puna, India
4 - 6 November, 1997
International Conference on Ethnoveterinary Medicine: Alternatives for livestock development. Organized by: BIAF Research Development Foundation. Call for papers, posters etc. is open with a deadline of 30 July, 1997. Last date for registration: 30 September, 1997. Information and registration: Dr. D.V. Rangnekar, BIAF Research DevelopmentFoundation, P.O.B.2030, Mafatlal Industries Compound, Asarwa, Ahmedabad - 380016, India (Telefax: +91.79.2123045, e-mail: biaf.ahm@ lwahm.nandanet.com).

Addis Ababa, Ethiopia
10 - 28 November, 1997
Training course on: 'Small ruminant production techniques'. Organized by: International Livestock Research Institute (ILRI). Objective of the course: Provide an integrated approach

to increasing productivity of small ruminants in smallholder farmimg systems. Fee: US$ 3520 including tuition fees and full board accommodation. Information and application: Programme leader, SCNARS, ILRI, P.O. Box 5689, AddisAbaba (Fax: +251.1.611892, e-mail: M.Smalley@cgnet.com).

Utrecht, The Netherlands
28 November, 1997
8th International symposium: Tropical Animal Health and Production. Theme: 'Aquaculture and disease control'. Organized by the Committee for the Advancement of Tropical veterinary Science (CATS) and the Office for International Cooperation of the Faculty of Veterinary Medicine of Utrecht University. Registration before 15 November, 1997 to Office for International Cooperation, Faculty of Veterinary Medicine. P.O. Box 80.163, 3508 TD Utrecht (Telefax: +31.30.2531815, e-mail bic@bic.dgk.ruu.nl).

Antwerp, Belgium
10 -12 December, 1997
International Colloquium on the 'Epidemiology and control of bovine theileriosis'. Organized by: Institute of Tropical Medicine. Subjects: epidemiology, immunization, treatment,, control programmes and economic aspects. Registration fee: Bfr 4,000, students Bfr 2,000. Registration: Mrs. D. Van Melle, Institute of Tropical Medicine, Nationalestraat 155, 2000 Antwerp (Tel. +32.3.2476206, telefax: +32.3.2161431, e-mail: dvmelle@itg.be).

Oenkerk, The Netherlands
12 January - 10 July, 1998
11th International Course on Dairy Husbandry and Milk Processing. Programme: Dairy deve-lopment, Animal husbandry, Milk processing, Teaching and extension, Dairy farm management, Small-scale milk processing. Closing date: 1 October 1997. Information and application: IPC Livestock, Dairy Training Centre Friesland, P.O. Box 85, 9062 ZJ Oenkerk (Tel.: +31.582561562, telefax: +31.58-2561628, e-mail: ipcdiero@pi.net).

Bangalore, India
22 - 27 February, 1998
Second Pan Commonwealth Veterinary Conference on 'Animal health and production in rural areas. The essential role of women at all levels'. Topics: Animal Production (cattle, buffalo, sheep, goats, pigs, equines, camels, elephants, ostriches, transport and draft animals, embryo transfer); Animal Health (animal health of domestic and companion animals, emerging and reemerging diseases, animal nutrition, vaccine production) and Veterinary Education (reciprocity in Commonwealth, assessment, extension training, continuing education and distance learning). Information: Organizing Secretary, 123, 7th 'B' Main Road, IV Block (West), Jayanagar, Bangalore--560011 (Tel.: +91.80646857, telefax: +91.806635210, e-mail: rahman.cva@sm4.sprintrpg.ems.vsnl.net.in).

Berlin, Germany and Addis Ababa, Ethiopia
March, 1998 - December, 1999
Master of Science Training Course in 'Tropical Veterinary Epidemiology' for veterinarians from developing countries. Organized by: veterinary faculties of the Free University of Berlin and Addis Ababa University. Programme includes course work, exams and research participation in Berlin and applied research, short training courses and workshops in Addis Abeba. Subject: modern concepts in population medicine for the improvement of the health status of animal populations. Tuition fees: US$ equivalent of DM 29,200. Deadline for application for DAAD scholarships 31 August, 1997. Closing date for registration: 30 September, 1997. Information and registration: The Coordinator, Freie Universität Berlin, Postgraduate Studies in Tropical Veterinary Medicine, Luisenstrasse 56 D-10117 Berlin (Tel.: +49.30 - .20936063, telefax: +49.30.20936349, e-mail: TropVet@ city.vetmed.fu-berlin.de, http: \\www1.vetmed.fu-berlin.de). For more information see elsewhere in this EQUATOR.

Harare, Zimbabwe
14 - 18 September, 1998
IX International Conference of the Association of Institutions of Tropical Veterinary Medicine (AITVM): 'Animal health and Production for Sustainable Development'. Organized by: Faculty of Veterinary Science, University of Zimbabwe, P.O. Box MP 167, Harare. Location: International Conference Centre, Harare.

EQUATOR

NEWSLETTER ON VETERINARY ASPECTS OF INTERNATIONAL DEVELOPMENT COOPERATION

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July - September 1997

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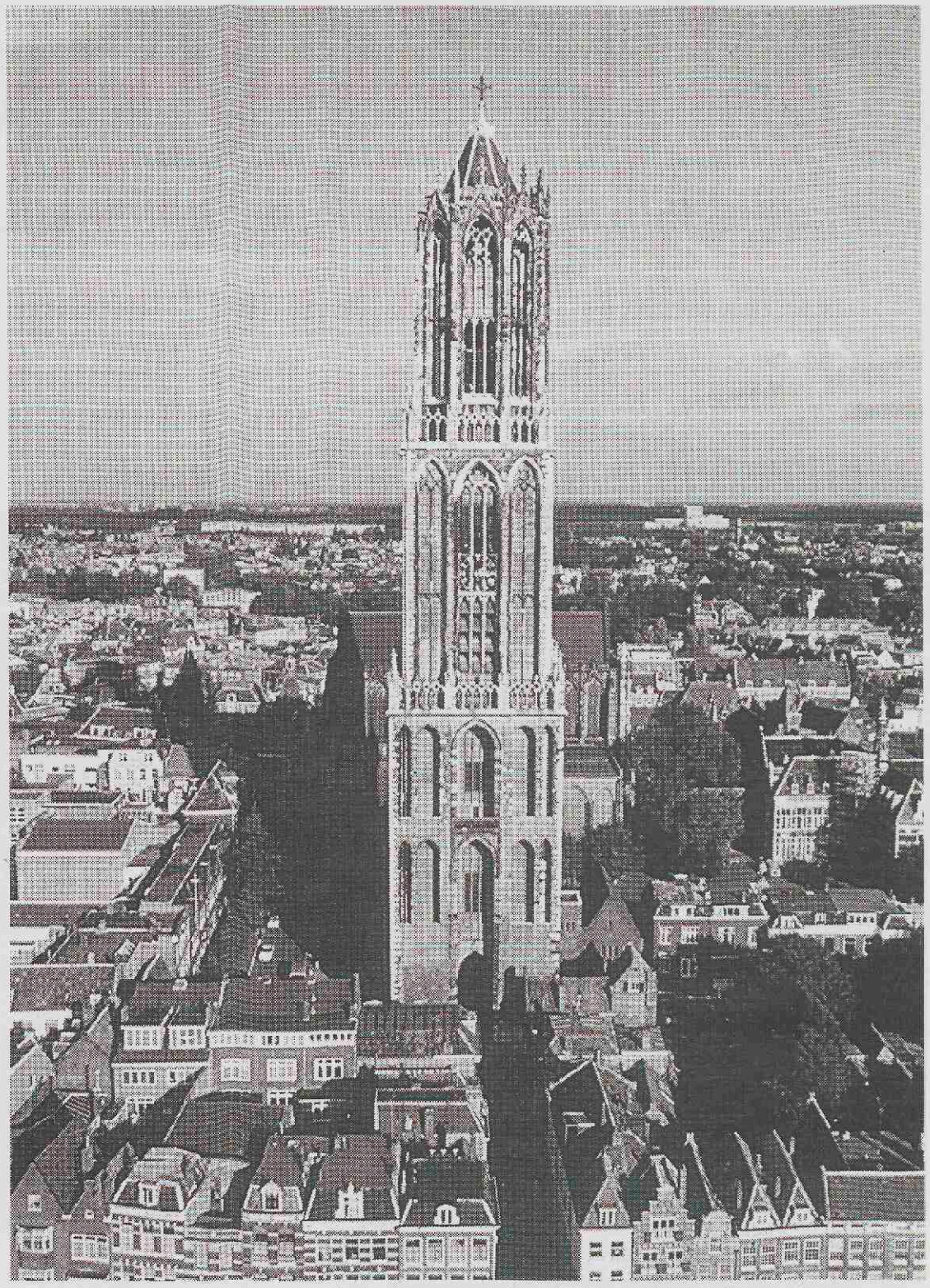
VOLUME 9,1997

THE POST-GRADUATE STUDY PROGRAMME OF THE FACULTY OF VETERINARY MEDICINE OF UTRECHT UNIVERSITY STARTS WITH FOUR MSc COURSES IN 1998

A new cycle of the MSc Course Programme starts in Utrecht in September, 1998. The courses are organized in the framework of the Graduate School of Animal Health (GSAH), in which the Faculty of Veterinary Medicine, Utrecht University and the ID-DLO Institute for Animal Science and Health, Lelystad are participating. The MSc courses have the following general characteristics. They aim at a deepening of the knowledge in a specific veterinary discipline. The courses have a minimum duration of 18 months and contain an educational part with classes, practicals, case studies and demonstrations and a research component. The students will be examined and need to pass the examinations before they can start with the research part. A research project is selected within one of the research programmes of the GSAH and the project should at least result in one publication in English in a peer-reviewed international journal. In general, applicants with a university degree in veterinary medicine can apply for admission. The Education Committee of the GSAH advices the Director about proposals from the faculty's departments to start MSc courses. After the green light has been given by the Director, the departments concerned are responsible for the organization, content, pricing and quality of the courses. The GSAH forms a Student Admission Committee for each of the courses. The Office for International Cooperation of the Faculty takes care of the logistics and arrangements for the visits of the participants. Students who have successfully completed an MSc course of the GSAH can apply for admission to a shortened PhD track within one of the GSAH research programmes. Admission of such former MSc students is judged by the GSAH management, assisted by the Education Committee. If admitted as PhD student (to a PhD programme in the same discipline, and with PhD research on the same subject as during the MSc period) the student may be awarded waivers for large parts of the GSAH education programme. It is obvious that scientific data and publications obtained during the MSc period will be included in the PhD thesis.

Two new courses will be initiated in



Beside for its University, Utrecht is also known for the famous Dom church (Photo: Utrecht Photo Service)

1998 (microbiology and anaesthesiology), one course will be organised for the second time (pathology) and one course will be held for the third time (epidemiology).

MSc Course 'Modern Approaches in Veterinary Microbiology and Immunology'

Objectives

The objectives of this course are: (1) to update the knowledge of veterinary microbiology and immunology; (2) to understand the principals of and develop practical skills in routine (molecular-biological) diagnostic techniques; (3) to develop the necessary knowledge and experience to perform research in microbiology.

Subjects

The course includes the following subjects during an 18 months period. During the first six months attention is given to: (1) courses on general microbiology, diagnostic techniques, virology, bacteriology, parasitology, immunology, quality control, informatics and scientific writing; (2) practicals and laboratory classes; (3) workshops on management of veterinary microbiological diagnostic centres and writing project proposals.
During the next twelve months a research project is executed which includes: study, design, work plan, performing of experiments, data collection and analysis, reporting and publication.

Relevance for developing countries

The ability to diagnose infectious animal diseases and the understanding of the disease mechanism and modes of transmission form the basis of veterinary intervention. Infectious diseases are the major obstacle for the development of the livestock sector in developing countries.

Duration: 18 months
Tuition fee: (approx.) Dfl. 35,000

MSc Course 'Veterinary Epidemiology and Herd Health'

Objectives

The objectives of this course are: to develop (1) knowledge on epidemiology and statistics to perform independent research and analysis of epidemiological data; (2) knowledge of economics to perform economic analyses of epidemiological data; (3) ability to apply theoretical epidemiological and health research concepts to practical veterinary medicine.

Subjects

The course includes the following subjects during an 18 months period. During the first six months attention is given to: courses on epidemiology, statistics and survey design, applied epidemiology and herd health, animal health economics, informatics and scientific writing and practicals on farm training.
During the following twelve months a research project is executed whereby the epidemiological methods are applied to the research including: study, design, work plan, performing of experiments, data collection and analysis, reporting and publication.

Relevance for developing countries

The understanding of the epidemiology of animal diseases forms the basic knowledge for veterinarians for the design of any economically sound disease control programme. This knowledge

can be directly applied in developing countries .

Duration: 18 months
Tuition fee: Dfl. 20,000

MSc Course 'Animal Pathology'

Objectives
The objectives of this course are: to develop knowledge on general pathology and pathophysiology in order to be able to perform independently disease diagnoses, studies and surveys of individual animals and animal populations.

Subjects
The course includes the following subjects during a 24 months period. During the first year attention is given to: courses on cell pathology, defence mechanisms, circulatory disturbances, tumour pathology, endocrine pathology, general toxicological pathology, laboratory animal science, informatics and scientific writing and laboratory techniques.
During the second year a research project is executed including: study, design, work plan, performing of experiments, data collection and analysis, reporting and publication.

Relevance for developing countries
The understanding of the pathology and pathophysiology of animal diseases forms the basic knowledge for veterinarians for any treatment and disease control programme. This knowledge can be directly applied in developing countries.

Duration: 24 months
Tuition fee: (approx.) Dfl. 30,000

MSc Course 'Veterinary Anaesthesiology'

Objectives
The objectives of this course are (1) to develop in-depth knowledge of the different aspects of veterinary anaesthesiology to allow adequate evaluation of the quality and/or validity of the clinical anaesthesia procedures and research protocols (2) to acquire adequate knowledge on the basic principles of all aspects of clinical research and (3) to apply these skills in the proper execution of a research plan

Subjects
The course includes the following subjects during an 18 months period. During approximately 6 months training will be provided in veterinary anaesthesia of large animals (equine, bovine, and porcine), companion animals (canine, feline and exotic pets) and laboratory animals (rodents and rabbits) and optionally exotic zoo and wild animals. Special attention will be given to applied physiology and pharmacology with emphasis on the different vital organ functions affected by anaesthesia. Subsequently approximately 12 months will be spend on a research project including: study, design, work plan, performing of experiments, data collection and analysis, reporting and publication.

Relevance for developing countries
This course will strengthen the professional and academic capacity of veterinarians involved in anaesthesiology in private and university veterinary clinics. Specifically those who are involved in the handling of wild animals under free-ranging or semi-domestic conditions can benefit from this course.

Duration: 18 months
Tuition fee: to be determined

General information and conditions

The educational requirements are that in general applicants with a university degree in veterinary medicine can apply for admission. Additionally a good knowledge of English (Toefl test result over 550) is required and 1 year of relevant working experience. For some of the courses fellowships may be available from the Netherlands Fellowship Programme.
For more information you can contact the Office for International Cooperation, Faculty of Veterinary Medicine P.O. Box 80.163, 3508 TD Utrecht, the Netherlands (Telefax: +31.30.253-1815, e-mail: bic@bic.dgk.ruu.nl).

Dr. R.W.Paling

After a day of hard work it feels good to relax at a terrace along the old canal (Photo: Utrecht Photo Service)

"It's just a matter of culture"

On July 29th KLM flight 743 took Adrian Solano back to his home country Costa Rica after a practical training of six months at Utrecht University's Faculty of Veterinary Medicine. He was the third final year student from Costa Rica in a row to spend 6 months in the clinic of the department of General and Large Animal Surgery. Just before Adrian's departure your EQUATOR-reporter interviewed him about the months he spent in the Netherlands and his plans for the future.

Why did you want to come to the Netherlands?

"I just wanted to see high-level veterinary medicine and to learn the differences between a fully developed country and a country like Costa Rica. Costa Rica is not a third world country like some countries in Africa, but it is not in the forefront of technical development either, at least not in veterinary medicine. Of course it is interesting to know which techniques can be used in Costa Rica, taking into account the general conditions there."

Did you speak to your fellow students who came to Utrecht in the past years?

"Of course. I spoke to Rafita (*Rafael Angel Vindas who was in Utrecht in 1994*) and to Memo (*Luís Guillermo Arroyo who stayed at the university in 1996*). Both were very positive. I learnt that in Utrecht the caseload is very high with lots of surgeries, not only during the day, but also almost every night. Memo also told me that the Dutch beer was very good!"

Is the Netherlands very different from Costa Rica?

"Sure, of course the geographical situation and also the climate are very different. (*Adrian looks with a grin out of the window, against which the eternal rain of the beginning 1997 Dutch summer is clattering.*) But, more important is that also the people are different. Over there the students always go home in the weekends if they are not on duty. Here the majority stays and invites you to dinner and has a good time."

So, student life is different here? By the way, how did you manage with the Dutch students?

"Oh yes, the students are more independent. One of the reasons for that is that the number of students in Utrecht is much higher (*in Costa Rica on average 20-25 students enter each year*). There are also negative aspects related to these higher numbers. People do not know each other that well, which may make communication difficult. In the smaller groups that are formed for the rotation during the last year of the curriculum you can see more or less the same rather close relationships as in Costa Rica."

Checking an intensive care patient after colic surgery. (Photo: P. Gootjes).

With respect to the second part of your question: I think I did not have many problems with the Dutch students or they with me. Only when I was in Internal Medicine there were two girls who did not want me to do anything because then they had less to do. However, this was an exception. In the house where I lived with many other students I got on well with everybody. The only thing was that I lived for almost 6 months on Chinese take away food as the kitchen was too dirty to use!

What did you do in these 6 months?

"Most of the time I stayed at the Department of General and Large Animal Surgery. I also spent a period of three weeks at Internal Medicine and I visited a number of farms with Jan van Amerongen who works at the Ambulatory Clinic and who also has worked for a couple of years in Costa Rica. Further, I quite frequently assisted Edwin Enzerink (*a resident at the Department of General and Large Animal Surgery who is involved in a joint research project with the Institute for Horse Husbandry in Lelystad*) when he went to Lelystad to take X-rays. I also attended the scientific meeting of the European College of Veterinary Surgeons in Versailles, France, and I spent a week at a very well-run private practice in Belgium.
Besides, I visited Luxembourg, Germany, Switzerland and Italy to see something of Europe. It was fun crossing the border to Italy. In Italy I immediately felt at home, they are Latin. The Swiss are like you, more formal and incontestably cooler."

So, you noticed large differences between various European countries?

"Oh yes, for sure. With the Dutch it takes a lot of time to "break the ice" as we say it. With the Germans that is even more difficult. The Belgians

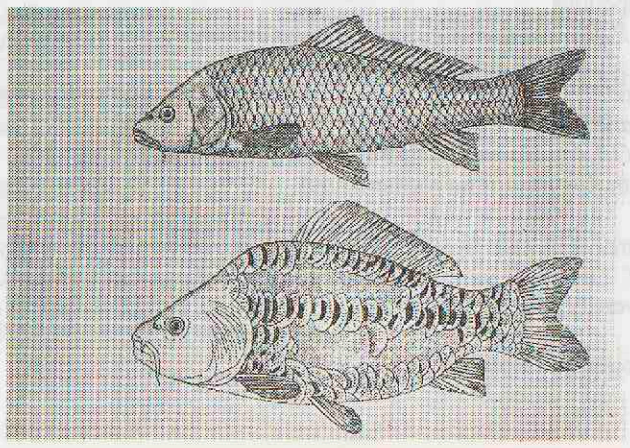
Tropical animal health and production and the Faculty of Veterinary Medicine in Utrecht

Utrecht University, one of the 14 universities in the Netherlands, includes 14 faculties. Its Faculty of Veterinary Medicine is the only veterinary faculty in the Netherlands and, as a result of its scientific and educational standards, it has been accredited by the American and Canadian Veterinary Medical Associations since 1973. Within the Faculty there are 11 departments. Research on tropical animal health is mainly conducted in collaborative research projects in the tropics.

In 1987 the Faculty's Office for International Cooperation (BIC) started with the coordination and extension of the international activities. In 1989 the Committee for the Advancement of Tropical veterinary Science (CATS) was established at the Faculty. The main objective of CATS is the perpetuation and promotion of research and education relevant to the tropics. The organization of the Symposia on **Tropical Animal Health and Production** is an activity of BIC and CATS. From 1990 onwards a yearly symposium has been organized. The themes were:

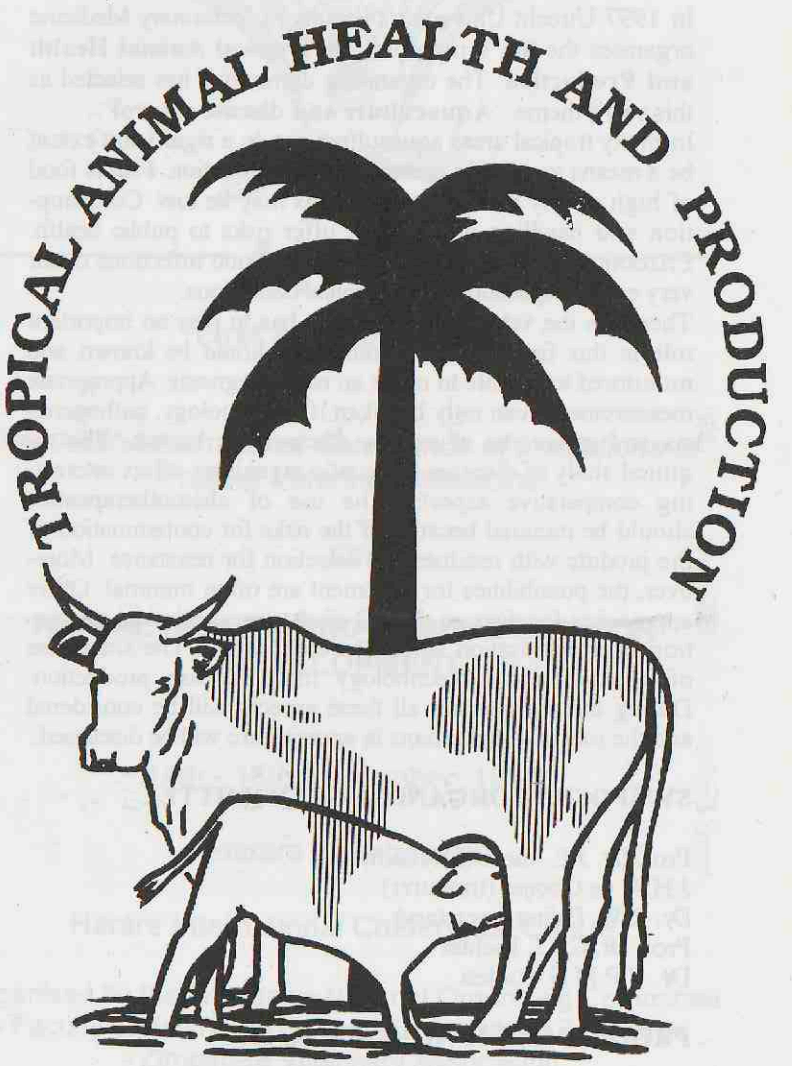
1990 **Contributions and perspectives from the Faculty of Veterinary Medicine, Utrecht University**
1991 **Research for development: policies, priorities and options**
1992 **Bovine theileriosis**
1993 **Recent developments in veterinary epidemiology**
1994 **Application of biotechnology**
1995 **Helminth diseases of ruminants: diagnosis, epidemiology, and control**
1996 **Urbanisation: veterinary public health consequences**

Information:
Office for International Cooperation
Faculty of Veterinary Medicine
P.O. Box 80.163, 3508 TD Utrecht,The Netherlands.
Tel.: +31.30.2532116, Telefax: +31.30.2531815
E-mail: bic@bic.dgk.ruu.nl



28 NOVEMBER, 1997

8 th SYMPOSIUM ON



AQUACULTURE AND DISEASE CONTROL

Time: 09.00 - 16.00 hours
Location: Faculty of Veterinary Medicine
Yalelaan 1, De Uithof, Utrecht
The Netherlands

8th Symposium on

TROPICAL ANIMAL HEALTH AND PRODUCTION

AQUACULTURE AND DISEASE CONTROL

In 1997 Utrecht University's Faculty of Veterinary Medicine organises the 8th symposium on **Tropical Animal Health and Production**. The organising committee has selected as this year's theme: '**Aquaculture and disease control**'.
In many tropical areas aquaculture can to a significant extent be a means to provide protein for the population. Fish is food of high quality and production costs may be low. Consumption and handling of fish may offer risks to public health. Enzootic outbreaks of disease and zoonotic infections occur very easily, especially under tropical conditions.
Therefore the veterinary profession has to play an important role in this field. Health parameters should be known and monitored to be able to make an early diagnosis. Appropriate measurements can only be taken if the aetiology, pathogenesis and symptoms of aquatic diseases are known. The required study of diseases in aquatic organisms offers interesting comparative aspects. The use of chemotherapeutics should be minimal because of the risks for contamination of the produte with residues and selection for resistance. Moreover, the possibilities for treatment are often minimal. Other approaches for disease control, such as zootechnical prevention or immunisation should be emphasised. The smart use of genetics and biotechnology may increase production. During this symposium all these aspects will be considered and the role of veterinarians in aquaculture will be discussed.

SYMPOSIUM ORGANIZING COMMITTEE

Prof. Dr. J.E. van Dijk (chairman)
J.H.A. de Gooijer (treasurer)
Dr. R.W. Paling (secretary)
Prof. Dr. C.J.J. Richter
Dr. V.P.M.G. Rutten

PROGRAMME 28 NOVEMBER, 1997

08.30 - 09.00 h. Registration

Opening

First morning session

Aquaculture and the veterinary profession

Relevance of aquaculture in the tropics
Dr. C. Nauen (European Commission, DG VIII, Brussels, Belgium).

The role of veterinarians in aquaculture: a review.
Dr. Nantarika Chansue (Faculty of Veterinary Science, Chulalongkorn University, Bangkok, Thailand).

Public health risks of consumption and handling of aquatic organisms.
Prof. Dr. F. van Knapen (Faculty of Veterinary Medicine, Utrecht Uinversity, The Netherlands).

Second morning session

Aquaculture production systems

Aquaculture systems
Dr. M.C.J. Verdegem (Wageningen Agricultural University, The Netherlands).

Nutritional aspects in relation to fish health
Dr. A. Obach (NUTRECO, Forus, Norway).

Genetics and biotechnical aspects of reproduction and production
Dr. Ir. J. Komen (Wageningen Agricultural University, The Netherlands).

First afternoon session

Health and disease of aquatic organisms

Comparative aspects of disease in aquatic organisms
Dr. Nantarika Chansue (Faculty of Veterinary Science, Chulalongkorn University, Bangkok, Thailand).

Health parameters of aquatic organisms
Dr. O.L.M. Haenen (DLO-Institute for Animal Science and Health, Lelystad, The Netherlands).

Second afternoon session

Control of disease in aquatic organisms

Control of disease in aquatic organisms by (bio-chemical) therapeutics
Drs. P.J. Werkman (Leusden, The Netherlands).

Control of disease in aquatic organisms by zootechnical prevention
Dr. O.L.M. Haenen (DLO-Institute for Animal Science and Health, Lelystad, The Netherlands).

Control of disease in aquatic organisms by immunisation
Prof. Dr. W.B. van Muiswinkel (Wageningen Agricultural University, The Netherlands).

Epilogue and closing

REGISTRATION FORM

I wish to attend the 8th Symposium "Tropical Animal Health and Production. Urbanisation: veterinary public health consequences" on 28 November, 1997 at the Faculty of Veterinary Medicine, De Uithof, Utrecht.

Registration is free, but please check box for lunch reservation.

☐* I wish to reserve lunch (Dfl. 15,- to be paid at the registration desk)

☐ I do not wish to reserve

* check one box

Name:.....

Institute:.....

Address:
.....

Postal code: ..... City:.....

Country:.....

Tel.: ..... Telefax:.....

E-mail: .....

Date: .....

Signature:.....

Please forward **before 15 November, 1997** to:

Office for International Cooperation
Faculty of Veterinary Medicine
P.O. Box 80.163
3508 TD Utrecht
the Netherlands.
Telefax: +31.30.2531815
E-mail: bic@bic.dgk.ruu.nl

Standing Committee of the Association of Institutions of Tropical Veterinary Medicine (AITVM)

AITVM

First Announcement

The Ninth International Conference of Institutions of Tropical Veterinary Medicine

on

ANIMAL HEALTH AND PRODUCTION FOR DEVELOPMENT

14th - 18th September, 1998

Harare - Zimbabwe

Harare International Conference Centre

Organised by the Zimbabwe National Organizing Committee
- Faculty of Veterinary Science, University of Zimbabwe
- Zimbabwe Veterinary Association

and the

Association of Institutions of Tropical Veterinary Medicine (AITVM)

THE NINTH INTERNATIONAL CONFERENCE OF INSTITUTIONS OF TROPICAL VETERINARY MEDICINE IN HARARE, ZIMBABWE, 14TH - 18TH SEPTEMBER, 1998

BACKGROUND

The Association of Institutions of Tropical Veterinary Medicine is composed of institutes which are specifically engaged in education in tropical animal health and production at all levels, in research and promotion of livestock development. The activities of the Association are organised by a Standing Committee consisting of representatives from eleven countries.

Amongst others, the Association has organised eight international Conferences on tropical animal health and production: in Scotland (Edinburgh, 1973), in West Germany (West Berlin, 1976), in Kenya (Nairobi, 1980), in Florida (Kissimmie, 1983), in Malaysia (Kuala Lumpur, 1986), in The Netherlands (Wageningen, 1989), in Cote d'Ivoire (Yamoussoukro, 1992), and in Germany (Berlin, 1995).

The 1998 Conference is focused on animal health and production for development with particular reference to needs for regional integrated animal disease control, domestic animal and wildlife resource management, increasing efficiency of public and private livestock health delivery systems, veterinary public health and food safety, and re-orientation of the veterinary curriculum. Rural development, community participation and the environment will form important aspects of the topics for discussion in plenary sessions as well as workshops.

It is anticipated that the Conference will provide another effective forum for scientists of tropical animal health and production and key persons from developing and developed countries to link together efforts for integrated approach to promoting animal health and production in the context of development. The Conference will offer the opportunity for information on new developments, on problem analysis, identification of requirements for future strategies and concepts for exchange of experiences and proposals between representatives from developing countries, agencies for technical cooperation and scientists.

The invited participants of the Conference will include official representatives from tropical countries, major funding agencies, bilateral and international agencies and regional organisations of animal health and production of tropical regions.

Conference languages will be English and French with simultaneous translation

TENTATIVE PROGRAMME

The theme of the Conference is "Animal Health and Production For Development"

Plenary sessions (one day)
with papers of invited speakers and

Five workshops (two days)
topics will be introduced by brief communications and posters

will be on:

-Needs and possibilities for regional integrated animal disease control programmes
-Domestic animal and wildlife resource management
-Increasing efficiency of public and private livestock health service delivery systems
-Veterinary public health and food safety
-Re-orientation of the veterinary curriculum

Note: Special attention will be given to rural development, community participation and environment in all the workshops.
Papers or posters should fall under the stated topics.

Excursions (one day)

Final plenary session (one day)
Discussion of the reports and proposals for policies and strategies

SUPPORT FOR ATTENDANCE

The organisers and the Standing Committee will approach relevant agencies for sponsoring of participants from developing countries.

Those intending to participate and/or present papers at the Conference should complete the attached form and return it as soon as possible.
Abstracts will be requested in the second announcement.

To be mailed to:

Prof. M.J. Obwolo
Faculty of Veterinary Science
University of Zimbabwe
P.O. Box MP 167
Harare, Zimbabwe

Name and Address (Block letters please)

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☐ I wish to participate at the Conference and to receive further information

☐ I am ready to contribute a brief communication (maximum 10 minutes)

☐ I am ready to bring a poster

Topic:.....

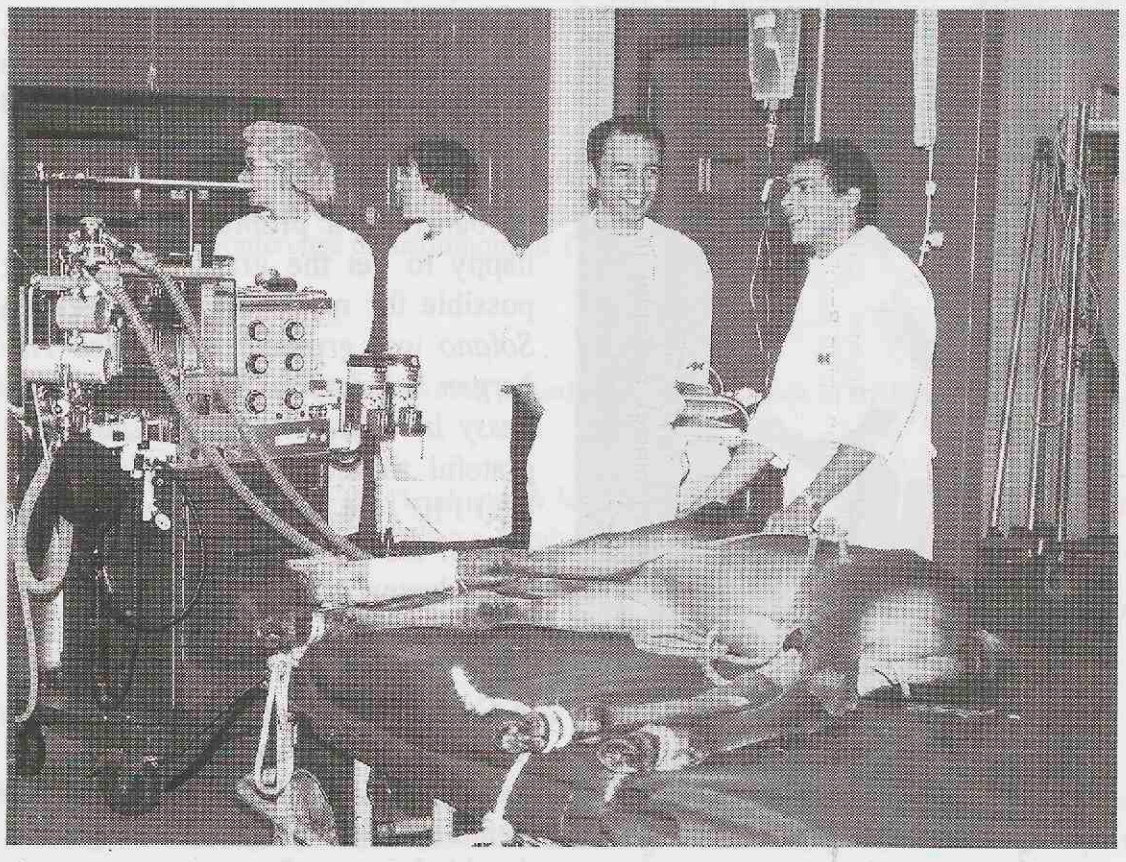
.....

.....

Entitled:.....

.....

Signature:.....



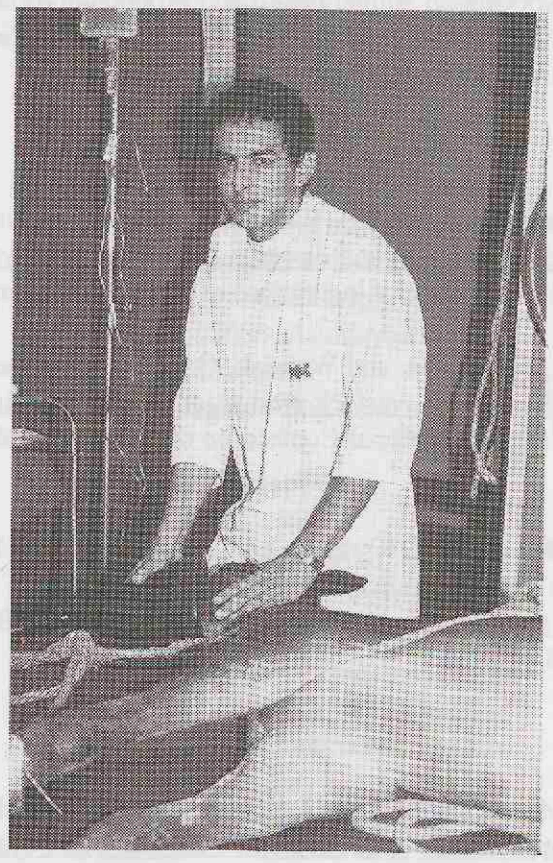
In the operation room (Photo: P. Gootjes).

are very friendly and the Swiss are like you as I already mentioned. Once the ice is broken, everybody is much more friendly but in the beginning you all keep some distance."

What do you think of the role of the students in the clinics in Utrecht in comparison to Costa Rica?

"Two things: they are seeing a lot more cases and they are doing different things. Let me explain this. The caseload is incredibly much higher here. The number of patients you operate upon in a year we will probably not have in half a century. So, they have a much better opportunity to learn by seeing cases. Imagine, I saw in 5 years only one equine lameness case! You will understand that when I came here the first few days I was not able to tell the lame leg from the sound limbs! On the other hand, much of the work is done by the stewards, like shaving the patients for operation, restraining them and so on. Here in Utrecht, the students do not have to walk horses with colic like they have to do over there. Also, the students are very accustomed to the high technical level and to having everything at their disposal. Here they take blood samples for the analysis of the acid-base balance of every patient that is only slightly suspected of having some trouble with this, or just for routine checks. It's just taking some blood, putting it in the machine and after two minutes you have your values. In Costa Rica I saw it done once, in a foal. They had to take the sample to a human hospital and to pay $ 55.- for the analysis. In those circumstances you think twice before taking such a sample. This brings me to the fact that the economical aspect is very important. Here in the Netherlands a lot of horses are insured and the insurance companies pay the costs of surgery. Therefore, it does not matter to the owner if surgery for colic will cost *f* 4,000.- or *f* 5,000.-. In Costa Rica horse insurances are non-existent.

Another thing is that the students here have plenty vets to ask questions to, there it is not rare that there is nobody to ask anything."



Induction of inhalation anaesthesia in a very young patient in the operation room. (Photo: P. Gootjes).

So, the relationship between teacher and student is different?

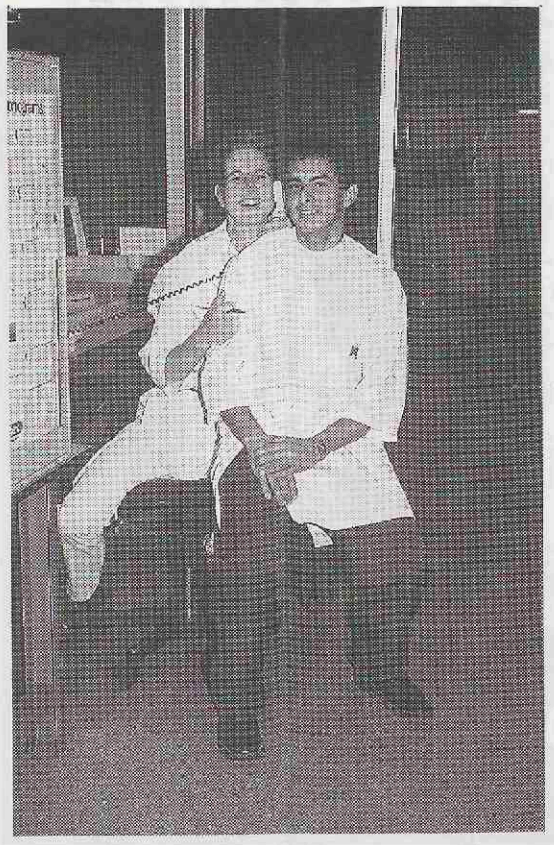
"Yes, also in the sense that apparently here there is no competition between these groups. In my country university professors sometimes see the students as a future menace. Therefore, in some occasions they do not give all the information they have. They "hide the milk" as we use to say. Maybe one of the reasons why this does not happen here is that there is no intertwinement of interests between private practice and the university career, as is common in my country. Our professor of Pathology, Berrocal, who has worked for 4 years in the Netherlands, always says that the Dutch have "just another way of thinking". As a student I always thought: "Oh, again that silly old fool about his 'other way of thinking'", but now I see what he means. It really is a matter of culture, of a different culture. Another example is that you respect the specialisations of other people. If in the Surgery Department there is a problem in the field of internal medicine, they'll call somebody in from the Medicine Department and *vice versa*. In my country that is seen as a weakness."

I understand that in general veterinary education is at a better level here than in Costa Rica?

"That is undoubtedly true and in my

Integration with the staff-members presented no problem to Adrian. (Photo: P. Gootjes).

opinion closely linked to the case load. However, there is one exception. I think that our training in reproduction in cattle is better than what people get here. I came across last year students who had palpated between 20 and 25 cows during their study. That is an extremely low number. In Costa Rica we do our practical training in the slaughter houses and we palpate hundreds of cows under the guidance of an excellent teacher, dr. Padilla. It was really great fun for me when we went out to do rectals on a farm with Jan van Amerongen and he himself checked all results of every student except for mine. When one of the Dutch students asked him why, he simply answered that he knew how and by whom I had been taught in this field



and that that was enough for him."

What about the future. What are your plans?

"I really would like to learn more. To do an internship in some place and then see what I can apply of all the things I learnt in my own country. However, the financial part will probably be a problem. I was very happy to get the grant that made it possible for me to stay here (*Adrian Solano was granted a so-called Tinbergen Scholarship by the Dutch Embassy in Costa Rica*) and I am very grateful to the Dutch Embassy and NUFFIC (the organisation that takes care of the practical and financial aspects during the stay in Holland). If I cannot arrange anything I shall see if I can get work in the private sector in Costa Rica. A university job is not what I prefer. The conditions are less than optimal and I also think that the mentality of the people working there should change...."

René van Weeren

RECENT PUBLICATIONS 23

RECENT PUBLICATIONS (23)

The section RECENT PUBLICATIONS is included in the English issues of EQUATOR. Scientific publications of the Faculty of Veterinary Medicine and other research institutes in The Netherlands, relevant to livestock production and health in the tropics as well as titles of papers by Dutch veterinary scientist working on animal health and production topics in relation to developing countries, will be included. Please inform the editor of your publications so we can bring them to the attention of the readers of EQUATOR. For reprints contact the authors directly, their addresses can be obtained from the editorial office.

ANIAMAL HEALTH

Mariner, J.C., klooster, G.G.M. van 't and Berhanu, A. (1996). Rinderpest control in Ethiopia: Participatory approach to vaccination in remote pastoral cummunities. In: Livestock production and diseases in the tropics: Livestock production and human welfare. Ed. H. Zessin. Proceedings of the 8th International Conference of Institutions of Tropical Veterinary Medicine, Berlin, 1995. pp. 324-329.

Schreuder, B.E.C., Moll, H.A.J., Noorman, N., Halimi, M. and Wassink, G. (1996). A benefit-cost analysis of veterinary interventions in Afghanistan based on a livestock mortality study. In: Livestock production and diseases in the tropics: Livestock production and human welfare. Ed. H. Zessin. Proceedings of the 8th International Conference of Institutions of Tropical Veterinary Medicine, Berlin, 1995. pp. 574-581.

Zadocs, R.N., Lopes Pereira, C, Poel, W.H.M. van der, Kramps, J.A., Maazen, W.G.G.M. van der and Keulen, K.A.S. van (1996). Serosurvey of viral respiratory disease in goats and sheep in southern Mozambique. In: Livestock production and diseases in the tropics: Livestock production and human welfare. Ed. H. Zessin. Proceedings of the 8th International Conference of Institutions of Tropical Veterinary Medicine, Berlin, 1995. pp. 731.

ANIMAL PRODUCTION

Graaf, T. de, Romero Zuniga, J.J., Caballero, M. and Dwinger, R.D. (1997). Microbiological quality aspects of cow's milk at a smallholder cooperative in Turrialba, Costa Rica. Revue d'Elevage et de Médicine vétérinaire de Pays tropicaux 50: 57-64.

Zwart, D. and Jong, R. de (1996). Animal health and dairy production in developing countries. In: Herd health and production manageent in dairy practice. Eds. A. Brand, J.P.T.M. Noordhuizen, Y.H. Schukken. Wageningen Press, pp. 511-543.

EDUCATION

Bosman, H.B., Does, C. van der and Zwart, D. (1996). Training programmes for livestock specialists in developing countries. In: Livestock production and diseases in the tropics: Livestock production and human welfare. Ed. H. Zessin. Proceedings of the 8th International Conference of Institutions of Tropical Veterinary Medicine, Berlin, 1995. pp. 657-663.

HELMINTH INFECTIONS

Boersema, J.H. and Pandey, V.S. (1997). Anthelmintic resistance of trichostrongylids in sheep in the highveld of Zimbabwe. Veterinary Parasitology 68: 383-388.

Moyo, D.Z., Bwangamoi, O., Hendrikx, W.M.L. and Eysker, M. (1997). A study of gastrointestinal nematode infections in communal cattle on the highveld of Zimbabawe. Zimbabwe Veterinary Journal 28: 26.

Moyo, D.Z., Eysker, M., Hendrikx, W.M.L., Bwangamoi, O. and Obwolo, M.J. (1997). *Ostertagia ostertagia* infection in cattle on an irrigaied farm on the highveld of Zimbabawe. Zimbabwe Veterinary Journal 28: 1-5.

TICK-BORNE DISEASES, THEIR AGENTS AND VECTORS

Kock, N.D., Jongejan, F., Vliet, A.H.M. van and Charlton, K. (1996). Evidence of *Cowdria ruminantium* infection in wildlife species of Zimbabwe. Proceedings Wildlife Disease Association Conference. Fairbanks, Alaska, July, 1996, p. 71.

Oliveira, C. d', Weide, M. van der, Jacquiet, P. and Jongejan, F. (1997). Detection of *Theileria annulata* by PCR in ticks (Acari: Ixodidae) collected from cattle in Mauritania. Experimental and Applied Acarology 21: 279-291.

1C9A9L7E/N1D9A9R9

Onderstepoort, South Africa
29 September - 4 October, 1997
Course in 'African Epizootic Diseases'. Training of veterinarians in the epidemiology, diagnosis and control of epizootic diseases. Organized by: Faculty of Veterinary Science, University of Pretoria. Subjects: foot-and-mouth disease, African horsesickness, lungsickness, Rift Valley fever, anthrax, Newcastle disease, African swine fever etc. Fees:US$ 2,500 including tuition, materials accommodation and meals. Application: Course Convenor, Dept. of Veterinary Tropical Diseases, Faculty of Veterinary Science, University of Pretoria, Private Bag XO4, Onderstepoort 0110, South Africa (Tel.: +27.12.5298269, telefax: +27.12. 5298312, e-mail: Infek5@op1.up.ac.za). Next course in September, 1998.

Edinburgh, UK
October, 1997
Start of modular MSc/MPhil courses in 'International Animal Health and SustainableDevelopment' and 'VeterinaryLaboratory Science'. Organized by: University of Edinburgh. Information: The Director, Centre for Tropical Veterinary Medicine, Royal (Dick) School of Veterinary Studies, Easter Bush, Roslin, Midlothian EH25 9RG, (Tel. +44.131.6506289, fax: +44.-131.4455099, e-mail: Jeanette.MacDonald@ed.ac.uk).

Addis Ababa, Ethiopia
6 - 24 October, 1997
Training course on: 'Improving cattle traction, milk and meat production'. Organized by: International Livestock Research Institute (ILRI). Objective of the course: Provide an integrated approach to the use of cattle as multipurpose animals (traction, meat and milk) in mixed crop-livestock smallholder farming systems. Fee: US$ 3520 including tuition fees and full board accommodation. Information and application: Programme leader, SCNARS, ILRI, P.O. Box 5689, AddisAbaba (Fax: +251.1.611892, e-mail: M.Smalley@ cgnet.com).

Addis Ababa, Ethiopia
10 - 28 November, 1997
Training course on: 'Small ruminant production techniques'. Organized by: International Livestock Research Institute (ILRI). Objective of the course: Provide an integrated approach to increasing productivity of small ruminants in smallholder farming systems. Fee: US$ 3520 including tuition fees and full board accommodation. Information and application: Programme leader, SCNARS, ILRI, P.O. Box 5689, Addis Ababa (Fax: +251.-1.611892,e-mail:M.Smalley@cgnet.com).

Utrecht, The Netherlands
28 November, 1997
8th International symposium: Tropical Animal Health and Production. Theme: 'Aquaculture and disease control'. Organized by the Committee for the Advancement of Tropical veterinary Science (CATS) and the Office for International Cooperation of the Faculty of Veterinary Medicine of Utrecht University. Registration before 15 November, 1997 to Office for International Cooperation, Faculty of Veterinary Medicine. P.O. Box 80.163, 3508 TD Utrecht (Telefax: +31.30.2531815, e-mail: bic@bic.dgk.ruu.nl). For more information see elsewhere in this EQUATOR.

Antwerp, Belgium
10 -12 December, 1997
International Colloquium on the 'Epidemiology and control of bovine theileriosis'. Organized by: Institute of Tropical Medicine. Subjects: epidemiology, immunization, treatment,, control programmes and economic aspects. Registration fee: Bfr 4,000, students Bfr 2,000.

Registration: Mrs. D. Van Melle, Institute of Tropical Medicine, Nationalestraat 155, 2000 Antwerp (Tel. +32.3.2476206, telefax: +32.3.2161431, e-mail: dvmelle@ itg.bc).

Bangalore, India
22 - 27 February, 1998
Second Pan Commonwealth Veterinary Conference on 'Animal health and production in rural areas'. Topics: Animal Production (cattle, buffalo, sheep, goats, pigs, equine, camels, elephants, ostriches, transport and draught animals, embryo transfer); Animal Health (animal health of domestic and companion animals, emerging and re-emerging diseases, animal nutrition, vaccine production) and Veterinary Education (reciprocity in Commonwealth, assessment, extension training, continuing education and distance learning). Information: Organizing Secretary, 123, 7th 'B' Main Road, IV Block (West), Jayanagar, Bangalore-560011 (Tel.: +91.80646857, fax: +91.806635210, e-mail: rahman.cva @sm4.sprintrpg.ems.vsnl.net.in).

Berlin, Germany and Addis Ababa, Ethiopia
March, 1998 - December, 1999
Master of Science Training Course in 'Tropical Veterinary Epidemiology' for veterinarians from developing countries. Organized by: veterinary faculties of the Free University of Berlin and Addis Ababa University. Programme includes course work, exams and research participation in Berlin and applied research, short training courses and workshops in Addis Abeba. Subject: modern concepts in population medicine for the improvement of the health status of animal populations. Tuition fees: US$ equivalent of DM 29,200. Closing date for registration: 30 September, 1997. Information and registration: The Coordinator, Freie Universität Berlin, Postgraduate Studies in Tropical Veterinary Medicine, Luisenstrasse 56 D-10117 Berlin (Tel.: +49.30 .20936063, telefax: +49.30.209 36349, e-mail: TropVet@ city.vetmed.fu-berlin.de, http:\\www1.vetmed.fu-berlin.de).

Melbourne, Australia
3 August, 1998 - 30 July, 1999
Degree of Master of Veterinary Studies (MVS) in Avian Health. Organized by: Faculty of Veterinary Science, University of Melbourne. Areas of study: Poultry pathology, Infectious causes and serology of poultry diseases; Disease, diagnosis, prevention and control; Poultry production systems and procedures; Keyboard skills for data handling; Enhanced communication skills; Preparation of dissertation. Tuition fee: $A 26,500. Closing date for applications: 31 March, 1998. Information: Dr. Trevor Bagust, Course Coordinator, Faculty of Veterinary Science, University of Melbourne, Parkville, Victoria 3052 (Tel.: +61.3.93449676, telefax: +61.3.-93449675, e-mail: t.bagust@unimelbltd.unimelb.edu.au) .

Wageningen, the Netherlands
16 August - 20 November, 1998
26th International course on dairy farming in rural development. Course programme: Introduction; Dairy development; Farming systems; Statistics; Economics and agricultural credit; Breeding; Pasture production; Nutrition and feeding: Animal health; Reproduction and AI, Extension and case studies. Course fee: Dfl. 5,500. Closing date: 1 May, 1998. Information and registration: International Agricultural Centre (IAC), P.O. Box 88, 6700 AB Wageningen (Tel.: +31.317.490111, telefax: +31.317 418552, e-mail iac@iac.agro.nl).

Barneveld, The Netherlands
24 August, 1998 - 25 February, 1999
28th International course on poultry husbandry and 28th International course on pig husbandry. Organized by: IPC Livestock International, Barneveld College. These courses will run at the same time. Following these courses participation is possible in the 21st International animal feed training programme (AFTP), which runs from 1 March to 27 May, 1999. Direct entry in this last course is also possible. Fees including board and lodging: Poultry course: Dfl. 24,500; Pig course: Dfl. 24,500, Feed course; Dfl. 12,000 or 14,500 (direct entry). Closing date: 1 May, 1998. Information: IPC Livestock Barneveld College, Dep. of International Studies and Cooperation Programmes, P.O. Box 64, 3770 AB Barneveld (Tel.: +31.342.414881, telefax: +31.342.492813, e-mail: io@ipcdier.hacom.nl).

Utrecht, the Netherlands
1 September, 1998 - 31 August, 2000
International MSc programme of the Graduate School of Animal Health, Faculty of Veterinary Medicine Utrecht University and ID-DLO Institute for Animal Science and Health, Lelystad. Information: Office for International Cooperation, Faculty of Veterinary Medicine. P.O. Box 80.163, 3508 TD Utrecht (Telefax: +31.30.253-1815, e-mail: bic@bic.dgk.ruu.nl). For more information see elsewhere in this EQUATOR.

Harare, Zimbabwe
14 - 18 September, 1998
IX International Conference of the Association of Institutions of Tropical Veterinary Medicine (AITVM): 'Animal health and Production for Sustainable Development'. Organized by: Faculty of Veterinary Science, University of Zimbabwe, P.O. Box MP 167, Harare. Location: International Conference Centre, Harare. Registration: Prof. M.J. Obwolo, Faculty of Veterinary Science, University of Zimbabwe, P.O. Box M.P. 167, Mount Pleasant, Harare (Tel. +263.4.303211, telefax:+ 263.4.333683, e-mail: vetscience@esanet.zw). For more information see elsewhere in this EQUATOR.

London, United Kingdom
October, 1998 - October, 1999
MSc Course on Wild Animal Health for graduates in veterinary and relevant sciences. Including: practical and theoretical instruction in the husbandry and nutrition of wild animals, taxonomy, population biology, conservation genetics, welfare and ethical aspects, epidemiology, immunology, infectious and non-infectious diseases, disease investigation, restraint, preventive medicine and surgery and an individual research project. Organized by: The Institute of Zoology (Zoological Society of London) and The Royal Veterinary College (University of London). Information and registration: Registrar, The Royal Veterinary College, Royal College Street, London NW1 OTU (Tel. + 44.171-4685000, telefax: +44.171.3882342).

Omaha, Nebraska, USA
16 - 22 October, 1998
Joint meeting of the World Association of Wildlife Veterinarians (WAWV), the American Association of Zoo Veterinarians (AAZV) and the Canadian Association of Zoo and Wildlife Veterinarians (CAZWV). Holiday Convention Centre, Omaha. Information: Dr. Wilbur Amand, President WAWV, 6 North Pennel Road (Lima), Media PA 19063, USA.

Lyon, France
20 - 25 September, 1999
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EQUATOR

NEWSLETTER ON VETERINARY ASPECTS OF INTERNATIONAL DEVELOPMENT COOPERATION

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OFFICE FOR INTERNATIONAL COOPERATION CELEBRATES ITS 10th ANNIVERSARY

On 30 September, 1997, the Office for International Cooperation (BIC) of the Faculty of Veterinary Medicine of Utrecht University celebrated its 10th anniversary with a 'BIC party'. Among the special guests who came to the reception were Prof. Obwolo, Dean of Veterinary Science of the University of Zimbabwe, Mr. Mumbengengwi, Ambassador of Zimbabwe in the Benelux, Mr. Prathomvarl and Mr. Atthakor, the Charge d'Affaires and First Secretary, of the Royal Thai Embassy in The Hague and the Rector Magnificus of Utrecht University, Prof. Voorma.
Apart from these special guests, more than 100 people came to congratulate the BIC staff, Dr. Robert Paling, Mr. Jean de Gooijer, Mrs. Anke van Doorn and Mr. Michiel Dijkstra, who formed the long-time 'crew' of the Office.
The guests were (former) staff and students of the faculty, but also visitors from abroad who were studying or working at the faculty, and colleagues from Utrecht University's central office and other institutes in the Netherlands.

Serving more than one purpose

People could take notice of what BIC has been doing over the 10 years, as for the occasion the BIC staff had prepared 8 colourful posters, that were exposed in the reception hall, to highlight the various activities of the Office for International Cooperation over the past 10 years. Moreover, the reception was a good occasion for people to meet old friends and for the foreign visitors to

Prof. Obwolo, Mr. Mumbengengwi, Ambassador of Zimbabwe in the Benelux and Ir. Drs. Van Strien (Photo: Otter)

Mr. Atthakor, first Secretary of the Royal Thai Embassy, Dr Sirivaidyapong and Mr. Prathomvarl, the Charge d'Affaires of the Royal Thai Embassy in The Hague (Photo: Otter)

meet faculty people who they usually do not meet during their day to day activities.

The history of BIC

In his speech, the Dean of the Faculty of Veterinary Medicine , Prof. Hans de Vries memorised the relatively short history of the Office as follows: 'Already in 1983 the Faculty Council decided to establish an 'office for development cooperation and tropical veterinary medicine' at the Faculty of Veterinary Medicine. This office would get the task 'to shape an active faculty policy for education and research in relation to developing countries'. In the course of the following years it became clear that the Office should serve a much wider range of international activities and when it started in September 1987 with the appointment of Dr. Robert Paling as Head of the Office, the task became: 'To develop the international policy of the Faculty of Veterinary Medicine and to stimulate and coordinate the international contacts'. The result of it we can see to-day. The faculty has an average of 50 to 70 visiting students and staff members at any given time'.

The role of BIC in the Faculty

The Dean continued his speech by mentioning some of the many activities of the Office for International Cooperation.

- 'From 1988 the Office organised the annual 10-week elective course for 6th year veterinary students on 'Tropical Animal Health and Husbandry' (tropencursus)
- In January 1989 the Office started the publication of EQUATOR, a bimonthly Newsletter on 'Veterinary Aspects of International Development Cooperation' of which up to now 50 issues have been published with Dr. Paling and Jean de Gooijer as principle editors throughout the years.
- On initiative of Dr. Paling and Prof. Dik Zwart, the Faculty Committee for the Advancement of Tropical veterinary Science, CATS (Tropencommissie) was established in 1989. In September 1990 the First international Symposium on 'Tropical Animal Health and Production' was organised in Utrecht. This Symposium, each year with a different theme, attracts about 100-150 participants from all over the world. This year's Symposium in November was on 'Aquaculture and Disease Control'.
- Following the fall of the Berlin wall, the collaboration of the Faculty with institutes in Eastern Europe, got a major impulse in 1991 when the Office succeeded to attract substantial European funding from Brussels for this collaboration under the TEMPUS project.
- To be at the forefront of veterinary education in Europe has been an ambition of this Faculty for many years. Therefore the Faculty has been active in the European programme for education and student mobility, ERASMUS, from its early days in the late 1980s. Until to-day the Office, through the ERASMUS project and other international programmes, has achieved that more than 15% of the veterinary students spent a period of their study abroad.
- The role played by the Office in the support and co-ordination of training programmes and technical collaboration programmes with faculties in tropical countries, is very well illus-

Dr Paling congratulates Dr Schukken with the award for 'the most dedicated and appreciated faculty staff member in international affairs' (Photo: Otter)

As Dean of Veterinary Science of the University of Zimbabwe, Prof. Obwolo receives the award for the 'most appreciated international partner institute' from Prof. Voorma (Photo: Otter)

trated by the many colleagues from these institutes we can welcome today.

- Last but not least I like to mention the role which the Office for International Cooperation plays in the policy development of the Faculty. A strategy document, prepared by the Office on 'Perspectives for International Cooperation. Structuring of the international relations of the Faculty of Veterinary Medicine (1995-2005)' was accepted by the Faculty Council in 1995 and is one of the corner stones of the Faculty policy for the next decade'.

BIC and Utrecht University

Following Prof. De Vries, Prof. Voorma, the Rector Magnificus took the floor to congratulate the Faculty with the celebration of the 10 year anniversary of its international office. Although Prof. Voorma was only recently appointed in his position as Rector, he could already stress the importance of such an international office for the faculty itself as well as for the University. He indicated that, although at the beginning the central administration had been a bit afraid of loosing 'business' if the faculties started their own international offices, soon it was realised that this was a good development. As the international activities expanded, it became clear that these could only be handled through close cooperation between the faculties and the central Office for International Relations. The Office for International Cooperation of the Faculty of Veterinary Medicine served as an example for the other faculties of Utrecht University. Prof. Voorma took the occasion to indicate that the Board of Utrecht University sees it as its task to initiate international programmes to execute the policy of Utrecht University and on the other hand to stimulate and support initiatives of the faculties. However, subsequently the faculties should continue to invest their own financial resources to strengthen their international position in education and research.

Celebrations

After all these serious talks it became time for a joyful event when Dr. Paling took the floor to announce that the celebrating office was going to give away 3 rewards with a price to be spent on an 'international activity'.

The most dedicated and appreciated faculty staff member in international affairs

'First I like to announce the winner of the award for the most dedicated and appreciated faculty staff member in international affairs. The winner of this award will receive an international certificate of the Faculty and an amount of fl. 1000,- to be spent on international travel.

Development of a structured post graduate international study programme is these days a must for a faculty that wants to be recognised as one of the best in Europe. There is one staff member, Dr. Ynte Hein Schukken, who realised this at an early stage and he started to develop the first Master of Science course at the Faculty in 1992. After a trial and error run a structured course on 'Veterinary Epidemiology and Herd Health' was developed. The course attracted 6 participants in 1994 an even 15 in 1996. With dedication Dr. Schukken guides his students through the course. However, he never

There is no doubt that the winner of the student award, Jurgen Welmers, is capable to work successfully in a developing country (Photo: Otter)

gives in to the quality standards, that have been set for the programme. His initiative has been the example for 3 more MSc courses, which have been developed at the faculty since.'

The winning veterinary student

'Next is the award and prize for a veterinary student of this faculty who did a successful international traineeship. The winner of this award will receive an international certificate of the Faculty and an amount of fl. 500,- to be spent on international travel.

We formulated 3 criteria:

- The student should have made a useful contribution to his/her own veterinary training
- During the stay at the sister faculty, he or she should also have contributed something of substantial educational relevance to the host institute
- And he or she should be a respected international representative of our faculty

Hundreds of students did a traineeship over the years. However, soon it was clear that one student conformed very well to our criteria. After a traineeship on Bonaire on goat reproduction, Jurgen Welmers requested again to get an opportunity to go abroad to a tropical country. As he stated in his motivation for a fellowship: 'I want to make sure that I am capable to work in a developing country'.

Jurgen was open to any suggestion and departed in May this year for a 4 months traineeship at the Faculty of Veterinary Science in Zimbabwe. He worked there, together with the staff, under the supervision of Prof. Arie Brand and produced a student handbook on 'Applied nutrition for dairy cattle', based on international literature and adapted to the local conditions. His contribution was not only the handbook that will serve for the practical training of veterinary students in animal nutrition in the future, but he also participated as an instructor in the first training. There is no doubt that, the winner of this award, Jurgen Welmers, is capable to work successfully in a developing country'.

The reception was a good occasion for people to meet old friends and to glance the posters (Photo: Otter)

Most appreciated international partner institute

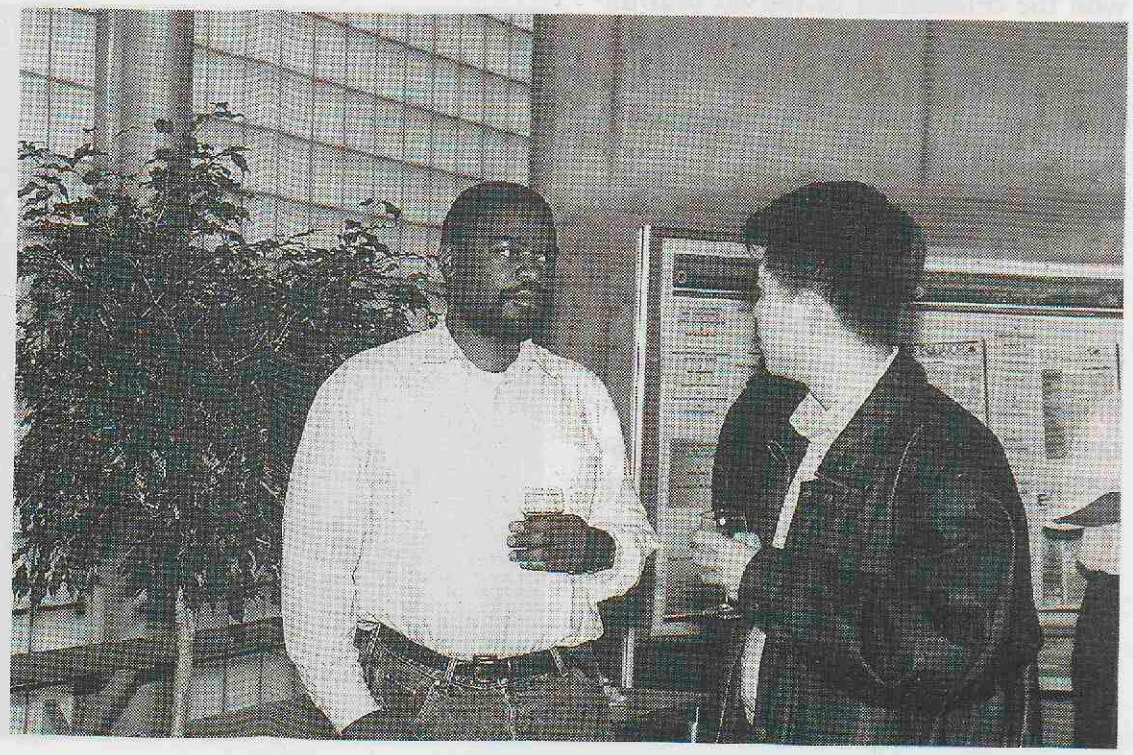
'The third and last award, which is an international certificate and an amount of fl. 1500,- is for a veterinary faculty that has distinguished itself as a many-sided partner for collaborative activities. Involving all the departments of the Utrecht faculty, involving staff exchange for academic as well as technical staff, involving collaboration in education and research, and a both-way student exchange programme.

The Utrecht faculty had and has close contacts with a number of sister faculties on all continents, like the faculties in Thailand in Asia, in Costa Rica in Latin America and Maputo in Africa.

However, with none of these faculties, the contacts were so many-sided and over such a long period as with the Faculty of Veterinary Science of the University of Zimbabwe in Harare'.

The Dean, Prof. Mark Obwolo, received the price of fl. 1500, out of the hands of Prof. Voorma. He thanked the Utrecht Faculty for its support and friendship shown over a period of more than 10 years and indicated that the price will be used for the preparations of a big conference in Harare in 1998.

Dr. R.W. Paling



Visiting MSc and PhD students joint the reception (Photo: Otter)

COENURIOSIS IN GOATS IN TETE PROVINCE, MOZAMBIQUE: AN EPIDEMIOLOGICAL STUDY

In 1985 a collaboration programme was established between the Veterinary Faculty of the Eduardo Mondlane University in Maputo, Mozambique and the Faculty of Veterinary Medicine of Utrecht University, the Netherlands (see also EQUATOR vol. 9, no 1). Within the framework of the programme an emphasis was laid on research of problems and diseases impairing the productivity of goats. From June to September 1997, Daan Vink, veterinary student and one of the editors of EQUATOR, performed a survey on central nervous disorders in goats. Coenuriosis was one of the diseases studied.

Background information

In Mozambique small ruminant research started in the 1950's, but unfortunately few results were published. The principal objective in this period was to characterise the native breeds. During 1982 to 1987, the focus of research was on livestock disease diagnosis and control. An epidemiological survey in the southern parts of the country revealed that pneumonia was the most frequent cause of death. Distinct central nervous symptoms were frequently seen: subsequent research made it apparent that heartwater and toxoplasmosis were the most important causes. In general, livestock production in Mozambique is unthrifty because of constraints like malnutrition, gastro-intestinal parasites and respiratory and central nervous diseases. Priorities for research were established in 1988 to determine and quantify the unknown causes of disease and mortality in semi-extensive and extensive management conditions. Studies on bacterial infections, respiratory diseases, toxoplasmosis, plant intoxication, and mineral deficiencies were done almost entirely in the southern parts of Mozambique.

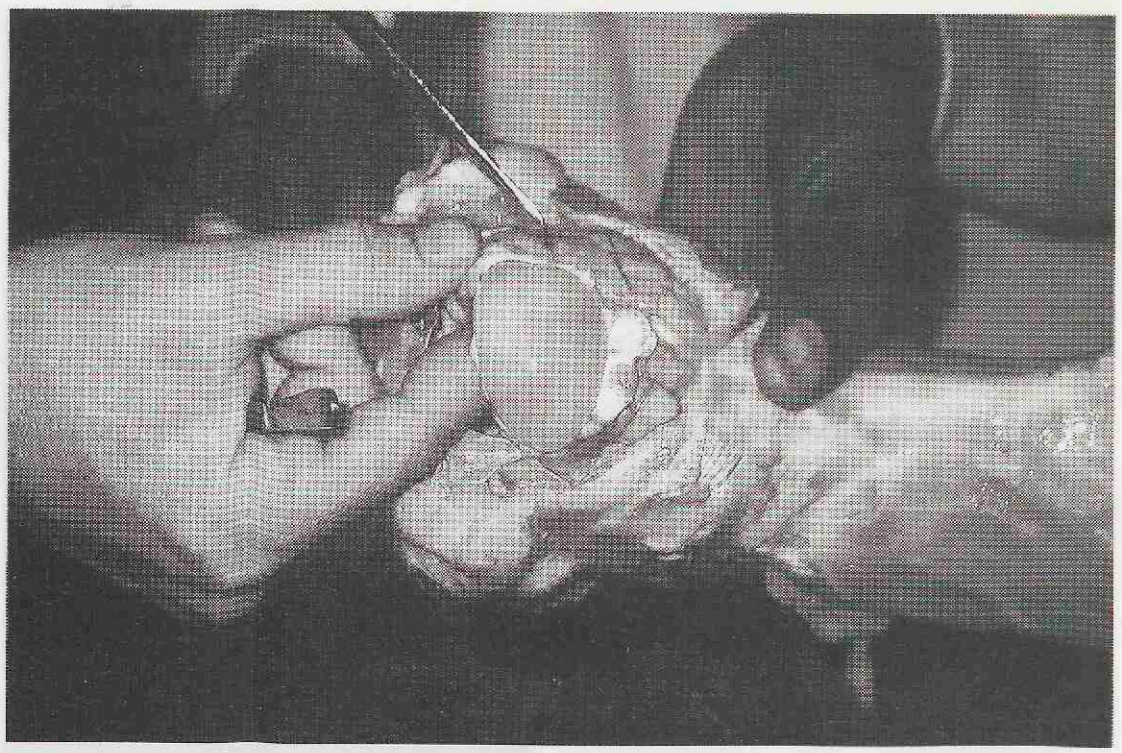
The current survey was only carried out in the north-western province of Tete. There were a number of good reasons for this. The largest goat populations can be found in this part of the country. An abattoir survey could be conducted at the slaughterhouse in Tete, which was probably the only place in the country where this was possible. No work of any significance has been done on the causes of central nervous disorders in Tete Province. Lastly, there were indications that parasitological conditions such as coenuriosis were highly prevalent. The survey was carried out with the assistance and participation of the provincial governmental veterinary authorities.

An abattoir survey could be conducted at the slaughterhouse in Tete, which was probably the only place in the country where this was possible (Photo: Vink)

Little information is available on the situation with respect to coenuriosis in Mozambique. The disease was diagnosed and found to contribute significantly to mortality subsequent to restocking of goats from Tete Province to Inhambane Province. In Tete Province, smallholder farmers in the family sector are familiar with a disease which causes circling and neurological symptoms in goats and claim that it causes large losses; they also state that the incidence of this disease is higher in certain areas than in others. However, although the provincial veterinary authorities suspect that coenuriosis (partly) accounts for this, no survey on its prevalence, incidence and geographical distribution had been carried out.

Coenuriosis

Aetiology and life-cycle. The disease, often known as "gid", is caused by the metacestode or bladder worm *Coenurus cerebralis*, which is the encysted larval stage of the cestode *Taenia multiceps*. The adult tapeworm is found in the dog and wild canids. It is found in the small intestine, where it can reach a length of 40 to 100 cm. It does not typically cause any symptoms in this host. The mature proglottid segments pass out with the faeces, after which the eggs are liberated and are distributed throughout the environment. These eggs consist of an embryo or onchosphere and a thick, tough covering envelope which prevents the desiccation and inactivation of the onchosphere in the environment. The life cycle is an indirect one, with sheep and goats acting as intermediate hosts.



the cysts sometimes measured more than 5 cm in diameter (Photo: Vink)

After ingestion of the eggs, the gastric and intestinal juices digest the embryo and the onchosphere is activated. It penetrates the gastric and intestinal mucosa and passes into the blood and lymphatic circulation. The onchosphere of *Taenia multiceps* has a specific affinity for nervous tissue and eventually lodges in two predilection sites - the brain or spinal cord. Here it develops into the metacestode. This is a fluid-filled cyst containing clusters of numerous invaginated scolices attached to its inner wall. The cyst takes about eight months to mature, during which time it becomes progressively larger as the volume of fluid increases. At maturity it can reach a diameter of five cm or more. In the goat the cyst may incidentally develop intramuscularly and subcutaneously as well. The cysts can be found in different locations in the brain: the left and right hemispheres, the median fissure, the cerebellum, and the brain stem. They may be located superficially (under the meninges) or deeper within the brain tissue. Superficial cysts may cause palpable rarefaction of the cranial bones.

Symptoms. Typically, the course of the disease is chronic, progressive and fatal. Clinical neurological symptoms develop as a result of increased intracranial pressure due to the cysts. As the localisation and depth of these are quite variable, there are no characteristic presenting signs. The clinical syndrome frequently includes circling, incoordination, a high-stepping gait and blindness.

Diagnosis. Diagnosis is based on clinical appearance, neurological examination, exploritative surgery or postmortem examination. No reliable serological test is available and haematology (i.e. white blood cell count) results lie within the normal range of values. An intradermal gid test can be performed, but this is not very reliable. As the presenting signs are so variable, knowledge of the endemic status and local epidemiological situation are helpful in making a presumptive diagnosis.

Therapy. The only treatment possible is by surgical removal of the cyst or by aspiration of cyst fluid through the softened skull. This treatment is seldom performed. No drug therapy is available.

Prevention. Prophylactically, regular deworming of dogs (e.g. with praziquantel) is advised. Other preventive measures include destroying the cysts at slaughter, separating dogs and livestock, and not feeding dogs offal.

Epidemiological aspects. The distribution of the disease is world-wide; in Africa the disease has been reported in Kenya, Ethiopia, Sudan, Chad, Angola, Congo (Zaire), Senegal and Southern Africa. A limited amount of data is available on the prevalence of the disease in different areas.

Materials and methods

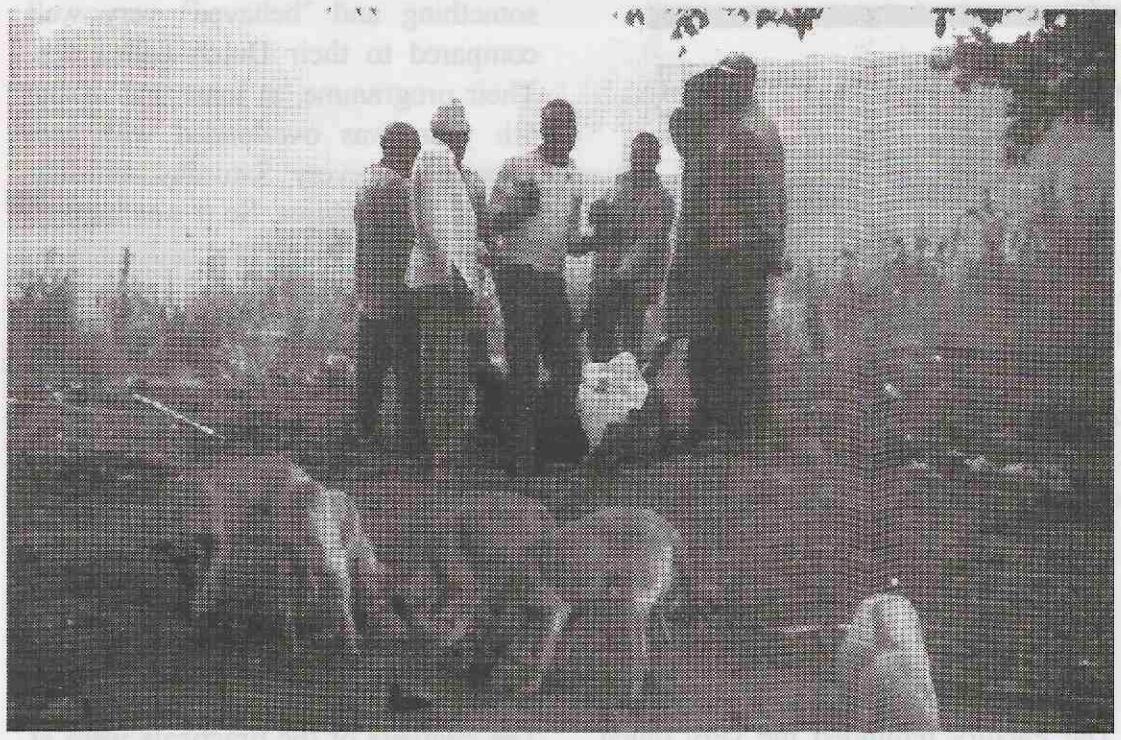
During the period from June to September, 1997, 130 goats offered for slaughter at the abattoir in Tete were clinically inspected and a post-mortem examination was performed. Prior to slaughter, a general physical inspection was carried out. The age, sex and condition (i.e. body score) were also noted.

After slaughter, the cranium of each goat was opened with a broad-bladed chisel and a mallet. The meninges were incised and the brain was exposed. Subsequently, the brain was gently lifted out of the cerebral cavity. A longitudinal incision was made between the left and right hemispheres (in the median fissure), and then both hemispheres were dissected transversally. After this, the cerebellum was brought forward and incised, and finally the brain stem was inspected. We estimated that using this method, all cysts with a diameter larger than about 1½ cm would have been identified. The location and diameter were noted for all the cysts found.

Results

Nervous symptoms were observed in five goats, two of which were slaughtered. Both these goats had *Coenurus* cysts in the brains. Symptoms were quite variable: circling, lateral deviation of the head and head tilt, abnormal correction reflexes especially in the hind legs (while sensory perception appeared normal), hypermetria, depression or conversely hyperaesthesia (loud bleating, excitation), horizontal nystagmus in one case, muscle tremors. This variability is typical of coenuriosis.

We found cysts in the brains of 24 goats; this corresponds to a prevalence of roughly 18.5%. 15 of the cysts (i.e. 62.5%) were located in the left hemi-



the life cycle of the *Taenia multiceps* tapeworm requires favourable conditions for the uptake of proglottids and eggs from the faeces of the dogs by the goats during browsing (Photo: Vink)

right hemisphere, and 2 in the median fissure. The diameter of the cysts ranged from less than 1 cm to 8 cm. Also, muscle cysts were identified in 18 goats.

Discussion and conclusions

It is striking that almost all of the goats carrying cysts did not show obvious nervous symptoms, although the cysts sometimes measured more than 5 cm in diameter. The fact that no symptoms of any kind were identified in infected goats makes it unlikely that there is a significant abattoir bias, i.e. that only animals in worse condition are sold for slaughter, as a result of which the determined prevalence therefore appears higher than the true prevalence. It is unclear why the majority of the cysts should settle in the left hemisphere. Farmers were familiar with neurological symptoms (which they mostly associated with circling, head tilt and lateral deviation, depression and hyperaesthesia), whether as a result of coenuriosis or otherwise. They indicated that it is a significant cause of mortality. An interesting detail is that I was told by different farmers that the goats always circle towards the left. This is however something I could not verify. It might possibly correlate with the more frequent localisation of the cysts in the left hemisphere; in literature, it is mentioned that circling is in most cases towards the side of the brain in which the cyst is located.

The composition of the sampled population of goats was not representative. Almost all the goats examined were male and less than a year old, often only six months. The reason for this is that most of the males are sold for slaughter, as few are needed for breeding purposes. This makes it difficult to extrapolate the findings to the large population of goats in Tete Province.

The determined prevalence of coenuriosis was higher than in any report I could find (where mention was made of figures ranging from 5 to 10%). The number of publications was however limited, and no data from the (Southern) African region on the prevalence could be tracked down. It is difficult to attach a significance to the prevalence figure; further research is really required. On the one hand, it could be expected that the prevalence in older goats will be, if anything, cumulatively higher. On the other hand, if this disease causes death among goats, the prevalence among unaffected goats in the field might actually be lower. It is also difficult to interpret the lack of neurological symptoms among goats carrying (often large) cysts in their brains - in other words, the relation between the prevalence and incidence of coenuriosis. In addition, we had the impression that the prevalence varies regionally: on some days as many as half of the goats examined at the slaughterhouse would have brain cysts, while on other days none would. Unfortunately it was not possible to trace the locations of origin of the goats on those days when many cysts were found. As the slaughtered goats originated from many different parts of the province, the incidence and prevalence could quite possible vary from village to village. This impression was corroborated by reports from several goat traders and farmers. But again, this is no more than speculation. There was also insufficient time to do an extensive field survey including questionnaires and farmer interviews in the different districts, which would have provided more information on this.

In order for the prevalence to be this high, the life cycle of the *Taenia multiceps* tapeworm must quite obviously be effectively maintained. There are several conditions which are prerequisite for this. It requires favourable conditions for the uptake of proglottids and eggs from the faeces of the dogs by the goats during browsing. This implies a close cohabitation between goats and dogs, which is undeniably the case in Tete. Conversely, it requires an effective transmission of the cysts with the scolices from the goats to the dogs. This initially presented us with some questions. The goats' heads are cooked unopened before consumption and it seems likely that the cysts are inactivated and destroyed by this process (although this could not be tested). So even if the remnants of the cysts are discarded after cooking and fed to the dogs as offal, this would not maintain the cycle. It seems likely that the life cycle of the *Taenia multiceps* worm is maintained by the muscle cysts, which may well be discarded from the cadavers to be fed to the dogs. Information from farmers is necessary to clarify this.

Daan Vink

LECTURING IN ZIMBABWE

The cooperation between the veterinary faculties of Utrecht, Copenhagen and Harare is a long-standing one. Financed by the EU, the cooperation programme has been running for years now and many staff members from Zimbabwe visited one of their European counterparts and vice versa. This time it was the turn of Dr. René van Weeren, staff member of the Department of General and Large Animal Surgery of Utrecht University's Faculty of Veterinary Medicine, and editor of EQUATOR. He went for 6 weeks to Zimbabwe to lecture large animal surgery.

Preparations

"A couple of weeks before the planned visit I received an e-mail with a list of the topics I was supposed to cover. The e-mail also said that I had to give practicals, without further details. No number of lectures or practicals was given, nor was a time table included. When studying the rather extensive list of topics thoroughly, I soon learnt that opinions about what exactly belongs to the discipline of large animal surgery apparently varied somewhat between different faculties. Diseases of the liver in cattle and fermentational disorders of the ruminant forestomachs are not in all places of the world thought to be part of the discipline of surgery. Anyhow, I set off for Zimbabwe, together with my wife who accompanied me on this trip."

The first visit to the faculty

In order to acclimatize and to get a bit more information about the tasks that were waiting for me, I arrived a few days before I had to start my lectures. The Faculty reminded me very much of the Faculty of Veterinary Medicine of the National University of Costa Rica, where I had been working for two years in the early nineties. About the same size with about the same (20-30) number of students per year. However, the Zimbabwe Faculty was of a more recent date and substantially better equipped then the faculty in Costa Rica.

During that first visit I was also told that there had not been a large animal surgeon for a long time, and that some clinical cases were waiting like a five-legged calf and a cryptorchid horse. When inspecting the large animal surgery room I found that it was very well equipped, but only rarely used.

The students

The students were very eager to learn something and 'behaved' very well compared to their Dutch colleagues. Their programme, at least that of the 4th year, was overloaded with lectures. Even every Saturday morning they had 3 lectures. So it was hard to conceive that they were still able to pay attention to what I was saying, but they did.

Their theoretical knowledge was good and without any doubt comparable to that of Dutch students, but they lacked practical experience in the field. This problem originates partly from the fact that the case load of large animals at the Harare Faculty is very low.

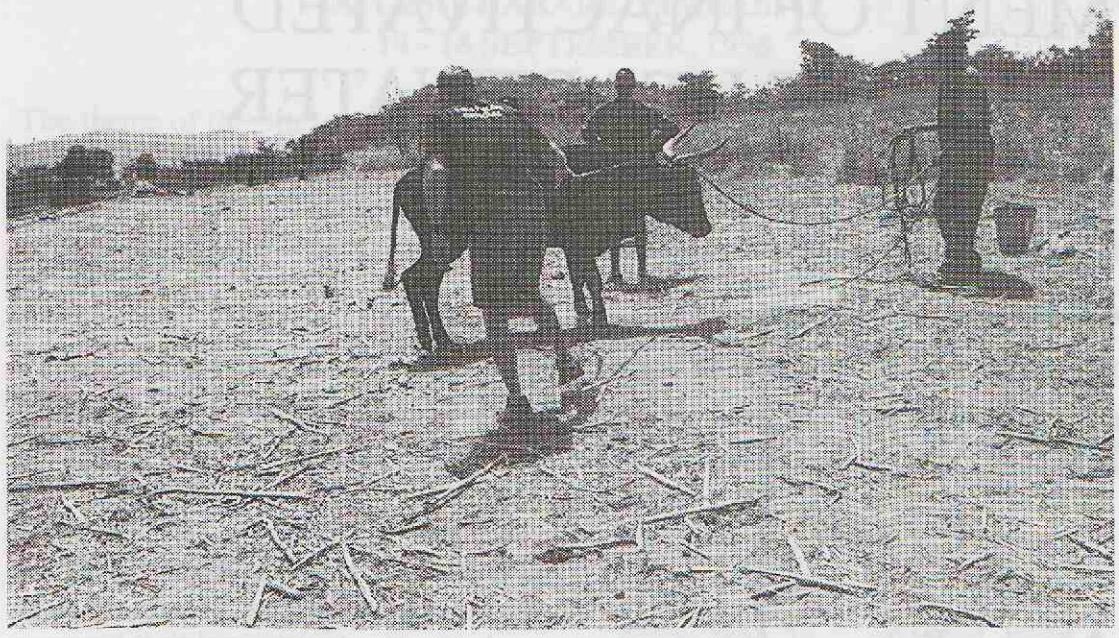
Practical training

The contents of the practicals were at the discretion of the individual lecturers. I decided to dedicate one of the practicals to the endoscopy of the nasal passages of the horse as I had been lecturing on equine upper airway diseases. The students appreciated the topic although it was clear that many of them were not very acquainted with horses. Another practical that I organized was an exploratory laparotomy in cattle. This was done on cattle owned by the Faculty and was therefore, in contrast to a comparable practical training in Utrecht, survival surgery. Fortunately, all animals survived and even no wound infection was seen. On that occasion I also discovered that, no matter what is stated on the bottle, the real expiry time of the local anaesthetic lidocain is 15 years or more.

Ambulatory clinic

In the meantime my wife, who is a veterinary graduate from Costa Rica, had made some friends under the 5th year students. She could regularly join the ambulatory clinic. The staff of the ambulatory clinic normally make visits three days per week, mainly to the communal lands where the small-scale farmers live. There, people arrive with all sorts of animals. From cows to chickens and often very skinny dogs. For the visits to the generally poor people in the communal areas only a

Castration under field conditions (Photo: Ramírez-Sánchez)



Casting a cow (Photo: Ramírez-Sánchez)

low fee can be charged. Sometimes people anticipate to this. On one occasion, after extensively treating the wound of a cow that belonged to an elderly couple, the old woman thanked the vet in charge very cordially and put a coin of 1 Zimbabwe dollar (about US$ 0.08) in his hand, adding that he really deserved his pay.
I myself went out with the ambulatory clinic only a few times as I was too busy lecturing. On one occasion we castrated some horses in the field, anaesthetizing them with romifidine and ketamine, which was a good experience for the students.

A very good initiative at the Harare Faculty is the presentation of cases or any other relevant experience in the veterinary field, by final year students. All have to present several times in front of a mixed audience of staff and students. I really enjoyed these presentations and I think this is a point where the average Dutch student lags behind. From time to time staff members also gave presentations and both my colleague Dr. Jan van Nes, who comes from the Utrecht Department of Clinical Sciences of Companion Animals and who was lecturing in Harare at the same time, and myself got the opportunity to give a presentation. These activities doubtlessly lead to a better mutual understanding.

International community

I really enjoyed working in Zimbabwe, being for a couple of weeks a staff member of the Harare Faculty. It was nice to go to the senior staff room at 10 am (if you had no lecture at that time) and to have tea (no coffee of course, the British influence is still very evident in Zimbabwe) with a number of other members of the staff. The Harare Faculty staff still consist to a large extent of foreigners, and interesting discussions may ensue if you are at the same table with people from Zimbabwe, India, Uganda, Kenya and Nigeria. On the other hand, this is also one of the weaknesses of the Faculty. More than 10 years after the start it appears still not possible to have all undergraduate teaching covered by the own staff. For this reason, the short term missions like mine are still necessary. This was a point of serious concern for the evaluation committee that was visiting the Faculty during part of the period I was in Harare. The employment of well-trained and sufficiently qualified staff should be among the first priorities. Permanent staff will also attract more patients to the hospital which are badly needed for the practical training of the students.

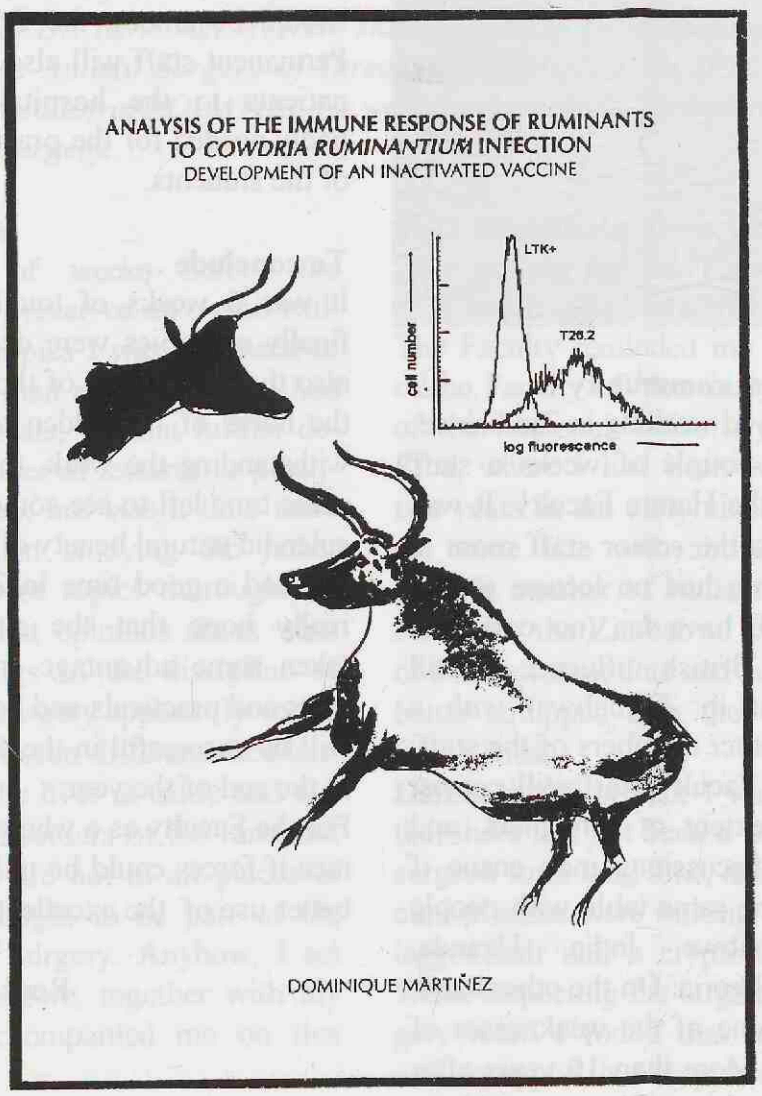
To conclude ...

It was 6 weeks of tough work, but finally all topics were dealt with and also the calf got rid of the 5th leg and the horse of its hidden testicle. Notwithstanding the work, there was still some time left to see something of the splendid natural beauty of the country. We had a good time in Zimbabwe. I really hope that the students have taken some advantage from the lectures and practicals and hope that they will be successful in the examinations at the end of the year.
For the Faculty as a whole it would be nice if forces could be united to make better use of the excellent facilities.

René van Weeren

People from the communal areas waiting for their turn for a consult (Photo: Ramírez-Sánchez)

DEVELOPMENT OF INACTIVATED VACCINE AGAINST HEARTWATER



On 21 May, 1997, Dr. Dominique Martinez defended his PhD thesis entitled 'Analysis of the immune response of ruminants to *Cowdria ruminantium* infection. Development of an inactivated vaccine' at Utrecht University. Dr. Martinez, a French veterinarian, has been the head of the laboratory for microbiology of CIRAD-EMVT in Guadeloupe since 1985. Studies on the development of vaccines for cowdriosis and dermatophilosis are conducted in this laboratory. For many years the group of EMVT has been collaborating in the field of cowdriosis research with the Department of Infectious Diseases and Immunology of the Utrecht Faculty of Veterinary Medicine. Presently, CIRAD-EMVT is actively involved in the EU-Concerted Action Project ' Integrated control of ticks and tick-borne diseases', which is coordinated by Dr. F. Jongejan of Utrecht University. Thus, it was not surprising that Dr. Martinez had chosen Utrecht to present and defend his thesis.

Cowdriosis

Cowdriosis or heartwater is a tick-borne disease of wild and domestic ruminants, which is endemic in Subsaharan Africa. So far, only ticks of the genus *Amblyomma* are known to transmit *Cowdria ruminantium*. The disease is also present on several islands of the Indian Ocean and the Lesser Antilles, including Guadeloupe Moreover, it threatens the American mainland.

In the absence of a commercial vaccine the control of the disease can be achieved only partially by rearing resistant animals and immunization by infection and treatment. However, these methods are hardly applicable on a large scale. Furthermore, cross protection between stocks is very limited.

Aim of the study

The aim of Dr. Martinez' study was to try to understand immune mechanisms leading to protection or pathological changes in animals infected with heartwater and to develop new methods to vaccinate domestic ruminants against the disease. Methods to evaluate the extent of diversity among *Cowdria* isolates were also developed.

Conclusions

The conclusions in the thesis and the 9 publications which described the research work are as follows:

- 'We have successfully immunized ruminants with inactivated preparations of *C. Ruminantium* and we have contributed to the understanding of the protective immune mechanisms thus opening the way for research on a recombinant vaccine.
- We have undertaken an evaluation of the extent of genetic diversity of *Cowdria* both between and within isolates by developing an RAPD assay and a method for cloning the parasite'.

More information

For more information you can consult the Internet at http://www.ruu.nl/tropical.ticks or contact Dr. Dominique Martinez, CIRAD-EMVT, B.P. 515, 97165 Pointe-à-Pitre cedex, Guadeloupe (French Antilles) (tel. +590.-255995, fax: +590.940396, e-mail: martinez@antilles.inra.fr).

THE 9TH INTERNATIONAL CONFERENCE OF THE ASSOCIATION OF INSTITUTIONS OF TROPICAL VETERINARY MEDICINE (AITVM), HARARE, ZIMBABWE 14 - 18 SEPTEMBER, 1998

The theme of the 9th International Conference of the Association of Institutions of Tropical Veterinary Medicine (AITVM) to be held in Harare on 14-18 September, 1998 is 'ANIMAL HEALTH AND PRODUCTION FOR DEVELOPMENT' and special attention will be given to rural development, community participation and the environment.

Theme of the conference

Most of the human population in tropical countries are in rural areas where major resources include livestock and wildlife. It is important that livestock productivity is enhanced to alleviate poverty in these areas and promote development as well as human health. Factors which act as constraints to livestock production include animal diseases, inadequate nutrition, and lack of appropriately trained personnel. Some of the factors such as infectious diseases spread across political borders and their control requires concerted regional approach.

Topics

Against this background, the 9th AITVM Conference will address five major topics:

(a) needs for regional integrated animal disease control;
(b) domestic animal and wildlife resource management;
(c) private and public livestock health delivery systems;
(d) veterinary public health and food safety;
(e) re-orientation of the veterinary curriculum;

Programme

The Conference will be held over a period of 5 days.

Day 1 will kick off with introductory remarks and Official Opening. This will be followed by key-note speeches at a plenary session during which the need for appropriate policies, methods of approach, monitoring and periodic evaluation of required activities, pertaining to each topic will be presented.

Days 2 and 3: Five separate workshops discussing the different topics will be held concurrently. Scientific papers will be presented and discussions will be held. Major findings and recommendations will be formulated.

Day 4: Visits e.g. to farms, veterinary institutions etc.

Day 5: Presentations of major findings and recommendations on each topic at a plenary session. This will be followed by concluding remarks and Closing Address.

Information

For information you can contact Professor M. J. Obwolo, President of the AITVM or Dr. S. Mukaratirwa, Chairman of Conference Scientific Committee (Faculty of Veterinary Science, University of Zimbabwe P.O. Box MP167, Harare, Zimbabwe. Tel.: +263.4-303211 ext 1437, telefax : +263.4-333683; 333407, e-mail: vetscience@esanet.zw; see also in 'CALENDAR 1997-1998' elsewhere in this EQUATOR).

FROM THE

AITVM

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Utrecht, The Netherlands
28 November, 1997
8th International symposium: Tropical Animal Health and Production. Theme: 'Aquaculture and disease control'. Organized by the Committee for the Advancement of Tropical veterinary Science (CATS) and the Office for International Cooperation of the Faculty of Veterinary Medicine of Utrecht University. Registration: Office for International Cooperation, Faculty of Veterinary Medicine. P.O. Box 80.163, 3508 TD Utrecht (Telefax: +31.30.2531815, e-mail: bic@bic.dgk.ruu.nl).

Antwerp, Belgium
10 -12 December, 1997
International Colloquium on the 'Epidemiology and control of bovine theileriosis'. Organized by: Institute of Tropical Medicine. Subjects: epidemiology, immunization, treatment, control programmes and economic aspects. Registration fee: Bfr 4,000, students Bfr 2,000. Registration: Mrs. D. Van Melle, Institute of Tropical Medicine, Nationalestraat 155, 2000 Antwerp (Tel. +32.3.2476206, telefax: +32.3.2161431, e-mail: dvmelle@ itg.be).

Bangalore, India
22 - 27 February, 1998
Second Pan Commonwealth Veterinary Conference on 'Animal health and production in rural areas'. Topics: Animal Production (cattle, buffalo, sheep, goats, pigs, equine, camels, elephants, ostriches, transport and draught animals, embryo transfer); Animal Health (animal health of domestic and companion animals, emerging and re-emerging diseases, animal nutrition, vaccine production) and Veterinary Education (reciprocity in Commonwealth, assessment, extension training, continuing education and distance learning). Information: Organizing Secretary, 123, 7th 'B' Main Road, IV Block (West), Jayanagar, Bangalore-560011 (Tel.: +91.80646857, fax: +91.806635210, e-mail: rahman.cva@sm4.sprintrpg.ems.vsnl .net.in).

Wageningen, the Netherlands
29 March - 11 April, 1998
International course on livestock and environment interactions. Course programme:

AGENDA

Livestock-environment interactions in the context of global changes; Analyses of key indicators for livestock-environment interactions; Assessment of environmental impact for livestock production systems; Policy instruments. Course fee: Dfl. 5,500. Information and registration: International Agricultural Centre (IAC), P.O. Box 88, 6700 AB Wageningen (Tel.: +31.317.490111, telefax: +31.317418552.
e-mail: iac@iac.agro.nl).

Melbourne, Australia
3 August, 1998 - 30 July, 1999
Degree of Master of Veterinary Studies (MVS) in Avian Health. Organized by: Faculty of Veterinary Science, University of Melbourne. Areas of study: Poultry pathology; Infectious causes and serology of poultry diseases; Disease, diagnosis, prevention and control; Poultry production systems and procedures; Keyboard skills for data handling; Enhanced communication skills; Preparation of dissertation. Tuition fee: $A 26,500. Closing date for applications: 31 March, 1998. Information: Dr. Trevor Bagust, Course Coordinator, Faculty of Veterinary Science, University of Melbourne, Parkville, Victoria 3052.
(Tel.: +61.3. 93449676, telefax: +61.3.-93449675, e-mail:
t.bagust@unimelbltd.unimelb.edu.au).

Kruger National Park, South Africa
9 -15 August, 1998
International Congress on Antrax, Brucellosis, CBPP, Mycobacterial diseases and Clostridial diseases. Organized by: OIE Regional Collaborating Centre for Africa with the ARC Onderstepoort Veterinary Institute. Programme will focus on the following aspects: epidemiology, control, zoonoses and detection.
Call for papers and poster abstracts: full text before 1 May, 1998. Congress venue: The Conference Centre, Berg-en-Dal rest camp, Kruger National Park. Fee: before 15 May: R 1250; after 15 May: R 1500; after 15 June: 1750. Registration: Organising Committee, Technology Transfer, Onderstepoort Veterinary Institute, Private Bag X05, Onderstepoort, 0110, South Africa (Tel.: +27.12.5299433, telefax: +27.12.5299143, e-mail: ria@moon.ovi.ac.za).

Wageningen, the Netherlands
16 August - 20 November, 1998
26th International course on dairy farming in rural development. Course programme: Introduction; Dairy development; Farming systems; Statistics; Economics and agricultural credit; Breeding; Pasture production; Nutrition and feeding: Animal health; Reproduction and AI, Extension and case studies. Course fee: Dfl. 5,500. Closing date: 1 May, 1998. Information and registration: International Agricultural Centre (IAC), P.O. Box 88, 6700 AB Wageningen (Tel.: +31.317.490111, telefax: +31.317 418552, e-mail iac@iac.agro.nl).

Barneveld, The Netherlands
24 August, 1998 - 25 February, 1999
28th International course on poultry husbandry and 28th International course on pig husbandry. Organized by: IPC Livestock International, Barneveld College. These courses will run at the same time. Following these courses participation is possible in the 21st International animal feed training programme (AFTP), which runs from 1 March to 27 May, 1999. Direct entry in this last course is also possible. Fees including board and lodging: Poultry course: Dfl. 24,500; Pig course: Dfl. 24,500, Feed course; Dfl. 12,000 or 14,500 (direct entry). Closing date: 1 May, 1998. Information: IPC Livestock Barneveld College, Dep. of International Studies and Cooperation Programmes, P.O. Box 64, 3770 AB Barneveld (Tel.: +31.342.414881, telefax: +31.342.492813, e-mail: io@ipcdier.hacom.nl).

Utrecht, the Netherlands
1 September, 1998 - 31 August, 2000
International MSc programme of the Graduate School of Animal Health, Faculty of Veterinary Medicine Utrecht University and ID-DLO Institute for Animal Science and Health, Lelystad. MSc Course 'Veterinary Epidemiology and Herd Health' (fee: Dfl. 20,000); MSc Course 'Animal Pathology' (fee: Dfl. 35,000); MSc Course 'Modern Approaches in Veterinary Microbiology and Immunology'(fee: Dfl. 68,500). Registration before 1 August, 1998. Information: Office for International Cooperation, Faculty of Veterinary Medicine. P.O. Box 80.163, 3508 TD Utrecht (Telefax: +31.30.253-1815, e-mail: bic@bic.dgk.ruu.nl).

Harare, Zimbabwe
10 - 12 September, 1998
Veterinary Pathology Symposium. Organized by: Southern and Eastern Africa Division of the C.L. Davis DVM Foundation. Information: Prof. M.J. Obwolo, Faculty of Veterinary Science, University of Zimbabwe, P.O. Box M.P. 167, Mount Pleasant, Harare (Tel. +263.4.303211, telefax:+ 263.4.333683,
e-mail: vetscience@esanet.zw).

Harare, Zimbabwe
14 - 18 September, 1998
IX International Conference of the Association of Institutions of Tropical Veterinary Medicine (AITVM): 'Animal health and Production for Sustainable Development'. Organized by: Faculty of Veterinary Science, University of Zimbabwe, P.O. Box MP 167, Harare. Location: International Conference Centre, Harare. Registration: Prof. M.J. Obwolo, Faculty of Veterinary Science, University of Zimbabwe, P.O. Box M.P. 167, Mount Pleasant, Harare (Tel. +263.4.303211, telefax:+ 263.4.333683, e-mail: vetscience@esanet.zw). For more information see elsewhere in this EQUATOR.

London, United Kingdom
October, 1998 - October, 1999
MSc Course on Wild Animal Health for graduates in veterinary and relevant sciences. Including: practical and theoretical instruction in the husbandry and nutrition of wild animals, taxonomy, population biology, conservation genetics, welfare and ethical aspects, epidemiology, immunology, infectious and non-infectious diseases, disease investigation, restraint, preventive medicine and surgery and an individual research project. Organized by: The Institute of Zoology (Zoological Society of London) and The Royal Veterinary College (University of London). Information and registration: Registrar, The Royal Veterinary College, Royal College Street, London NW1 OTU (Tel. + 44.171- 4685000, telefax: +44-.171.3882342).

Omaha, Nebraska, USA
16 - 22 October, 1998
Joint meeting of the World Association of Wildlife Veterinarians (WAWV), the American Association of Zoo Veterinarians (AAZV) and the Canadian Association of Zoo and Wildlife Veterinarians (CAZWV). Holiday Convention Centre, Omaha. Information: Dr. Wilbur Amand, President WAWV, 6 North Pennel Road (Lima), Media PA 19063, USA.

Melbourne, Australia
February, 1999 - January, 2000
Degree of Master of Veterinary Studies (MVS) in Health and Production of Small Ruminants. Organized by: Faculty of Veterinary Science, University of Melbourne. Areas of study: Parasitology; Gross and histopathology; Reproduction; Advanced sheep management; Introductory surgery and field visits.Tuition fee: $A 26,500. Closing date for applications: 30 September, 1998. Information: Dr. Trevor Bagust, Course Coordinator, Faculty of Veterinary Science, University of Moulbourne, Parkville, Victoria 3052 (Tel.: +61.3.93449676, telefax: +61.3.93449675, e-mail:
t.bagust@unimelbltd.unimelb.edu.au).