

The use of laboratory animals in the third world countries

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In many third world countries the use of laboratory animals is very limited. A computer search, on the subject, covering the last 10 years, yielded only 4 articles, of which only one was relevant. Scrutinizing the last 10 years of *Index Veterinarius* yielded another 6 articles, of which only one was relevant.

Hence the statements presented below are based mainly upon experiences achieved during the years 1976-1989 when I worked full-time or part-time on international post graduate courses on veterinary pathology and connected follow up activities (visits, seminars, courses on sampling techniques, research projects, etc.) in different countries in Africa (15), Asia (10) and Latin America (7). (Fig. 1).

The reality is that, in third world countries, animals which are used for experimental research are often

small ruminants such as sheep, goats and calves or young animals of other species such as camel, buffalo etc., and in research programs aimed at solving questions pertinent to, or connected with, problems in food production. (Fig 2).

There usually does not exist any incentive to use defined animals (*Öbrink & Rehbinder* 1993). Instead animals used in experiments may be bought on the market or be brought into an experimental research situation taken directly from a garbage dump. (Fig 3). Captured, feral dogs and street dogs may be mixed with domestic dogs in the one and same investigation.



Fig 1. Participants of a training course in pathology and sampling techniques in action. Photo: C. Rehbinder.

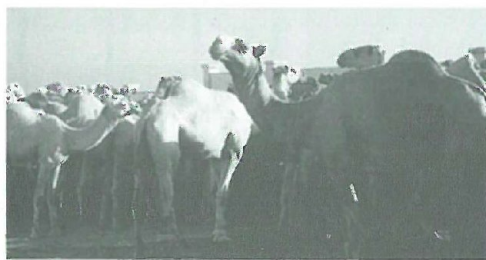


Fig 2. Common and necessary laboratory animals in some countries. Photo: C. Rehbinder.



Fig 3. Laboratory animals? Photo: C. Rehbinder.

Of the "traditional laboratory animals" mainly rabbits are used and then mostly for the production of antibodies. The use of rodents is usually the exception.

Countries in the process of development, i.e. several Latin American and Asian and some few African countries seldom have a few institutions with barrier reared rodents, while other institutions, often universities, of the same country, may work only with conventionally reared animals of a totally unknown quality. Possibilities of surveillance and monitoring the health status of the animals are mostly absent and when "health monitoring" is performed it is most often done by sending samples abroad or by the use of commercially available kits for certain viral infections and/or by routine bacteriology and parasitology.



Fig 4. Simple laboratory investigations easy to perform if you have all the equipment needed. Photo: C. Rehinder.

The reasons for the lack of a proper use of laboratory animals are principally:

- Economic, i.e. lack of a monetary resources to erect decent animal houses and to train people in laboratory animal science. Lack of money often negatively affects even the possibilities to maintain simple ordinary laboratory services. (Fig 4). Hence, suitable disposable material, agar, etc., may be missing, making even very ordinary investigations almost impossible.
- Lack of education concerning laboratory animals. The lack of knowledge in its turn affects the economic priorities.

Problems related to the keeping of laboratory animals in the third world countries are:

- Lack of educated personnel. Animal caretakers usually belong to the low income groups, have low salaries, a low social status and many can not read.
- Lack of adequate hygiene. Lack of appropriate water and fodder resources. Lack of suitable houses. Lack of understanding of the importance of hygiene and sanitary measures (due to lack of educated personnel).
- Lack of knowledge and understanding of laboratory animal husbandry and basic experimental animal methodology.

The prerequisites for research are, in developing countries, mostly different from those of industrialized countries and mainly aimed at solving domestic food production problems. The food producing animals of most developing countries live in a harsh en-

vironment and are frequently affected by a high morbidity of different diseases. The aim of a project is thus often to find an etiological agent and carry out preventive measures – preferably by the production of a vaccine.

In addition, most of the developing countries do not have any major pharmaceutical industries and thus almost no contacts with modern concepts such as GLP, QA, etc. It, nevertheless, has to be remembered that, although performed under utterly primitive conditions, numerous research programs of considerable value and importance have been and are carried out in the third world countries.

Today, however, the technical progress is fast in the industrialized countries which produces a gap in technical knowledge. It, anyhow, has to be remembered that what today, in industrialized countries seems obvious and self evident concerning laboratory animal quality, only some decades ago was new and debatable and that laboratory animals of a very low quality, at that time were extensively used (O'Donoghue 1988), and in instances these circumstances still prevail. (Fig 5 & 6).



Fig 5 & 6. The breeding of laboratory animals, in Sweden, a decade ago. Photo: R. Feinstein.

To partly solve the above described discrepancies, the main measure to be taken is that of education. It is important to make the progress in laboratory animal sciences continuously accessible to people from developing countries. Probably post graduate courses on laboratory animal science and experimental animal research methodology is one of the best ways to achieve an improved standard. It is important to expose the participants to a variety of modern research activities so that, when returning to their home countries, they can adapt applicable parts of what they have learned to their every day reality.

It is also of importance that developing countries collaborate in initiating their own research programs, so that they are not solely dependent on industrialized countries for new products and research. (Lefevre 1988).

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