

## **SUSANE - Sustainable, sanitary and efficient management of animal manure for plant nutrition**

### **Editorial**

Welcome to the SUSANE newsletter, which intend to bring short articles every 6 month or more about the results of the studies carried out in the SUSANE - research project. SUSANE - research is the acronym for the project “Sustainable, sanitary and efficient management of animal manure for plant nutrition - Vietnamese-Danish science transfer and training program”.

This first issue of the newsletter will give a short presentation of the overall objectives of the SUSANE-research, about the institutes taking part in the project and also the three Vietnamese PhD students and their study program.



*Opening ceremony of the SUSANE research project – 24<sup>th</sup> April 2006.*

### **SUSANE-research**

SUSANE-research is a 3.5 year program of research and training involving collaboration between agricultural research institutes in Vietnam and Denmark. The program started in April 2006 and will run until December 2009. The project is financially supported by the Council for Development Research (RUF) of the Danish Ministry of Foreign Affairs.

The overall objective of the study is to identify environmental and sanitary health hazards associated with animal manure in Vietnam and to develop more safe and sustainable manure management practices. The Vietnamese institutes intend to increase their analytical and methodological capacities within manure technology, fertilizer value estimations and assessment of hygienic aspects of manure management.



*Manure management in pig production will be one of the issues in this study*

To achieve these goals three Vietnamese research institutes ([www.susane.info](http://www.susane.info)) will focus the research on, 1) Management of manure, collection, storage, transport and application, 2) Optimize timing and precision of manure application and 3) Hygiene and pathogen aspects of manure. More details about the research will be mentioned in a newsletter presenting the PhD students enrolled in the program.

### **Manure research needs**

SUSANE research organised together with the Agricultural Sector Programme Support (DANIDA) in Hanoi a fact finding workshop attended by all relevant institutions.

The main conclusion of the workshop was that there is a need of more whole farm research studies on how the manure may be used more efficiently and at lower risks. It was pointed out that the project should target the medium sized farms (family owned, but expanding scale businesses), as these will account quantitatively for a large proportion of the increasing problems. Both small-scale (family) and large-scale (industrial scale) manure handling will need knowledge generated.



*Participants at the fact finding workshop: Sustainable, sanitary and efficient management of animal manure for plant nutrition in Vietnam (SUSANE) 24 November 2004.*

Further the following major issues and research needs related to manure handling were identified:

- A thorough analysis of manure handling and uses practises and the associated costs and incomes, so that a cost-benefit analysis of alternative strategies for manure handling (storage, biogas-digestion, transport) and use (crop vs. fish-ponds) can be carried out.

- Development and adaptation of manure treatment techniques, including study of the effect on nutrient losses and subsequent availability to crops.
- On-farm nutrient balance studies, which could indicate thresholds of appropriate manure use on farms with very little land available for manure utilisation, which will increase number due to increasing intensity of animal production.
- Odour problems are an area of increasing concern with increases in medium sized farms in many villages.
- There is insufficient knowledge of the different pathways for spreading pathogens via manure and on their relative importance for animal and human health in different farming systems. Therefore, there is a need to do research on environmental health and hygienic aspects of the various manure management techniques.

### **Participating Institutes**

Danish Institute of Agricultural Sciences (DIAS) is coordinator of the overall project and National Institute of Soils and Fertilizers (NISF) the Vietnamese project responsible. Other Vietnamese institutes taking part in the project are National Institute of Animal Husbandry (NIAH) and National Institute of Veterinary Research (NIVR) and in Denmark two departments at the Royal Danish Veterinary and Agricultural University (KVL).



*Biogas production on a small pig producing farm in Bac Giang*

*Danish Institute of Agricultural Sciences (DIAS - [www.agrsci.org](http://www.agrsci.org)) is a public sector research institution under the Ministry of Food, Agriculture and Fisheries. The Institute is Northern Europe's biggest applied research institute and has experience in projects involving both national and international co-operation. DIAS has approx. 800 employees, of these approx. 375 scientists. SUSANE research is coordinated by the Department of Agricultural Engineering, which has a focus on research in automation and system engineering and environment and climate engineering.*

*National Institute for Soils and Fertilizers (NISF) is a public sector research institution under the Ministry of Agriculture and Rural Development (MARD). The institute has a staff of 170 including 15 doctors, 15 masters, 94 engineers and 46 technicians; besides, there are 32 engineers and 26 technicians working as occasional staff. The institute is the leading research institute in the field of soil and fertilizer in Vietnam. The main objective of the research is to validate and apply new technologies to protect, stabilize and improve soil fertility aiming at effective use of land resources and fertilizer. The institute also test the quality of fertilizers and other nutrient-containing products, carry out soil and water environment research and undertake information, training and technical advisory work relating to management and use of soil, fertilizer and soil environment.*

*National Institute of Animal Husbandry (NIAH)* is a public sector research institution under the Ministry of Agriculture and Rural Development (MARD). The institute has approx. 635 employees, of these approx. 259 scientists. The main tasks of NIAH are producing recommendations on animal production for the Government, study animal breeding and genetics, as well as animal feed, nutrition and related issues including feed analysis, nutrient requirements for different species of animals and feeding regimes. The institutes also undertake studies on animal housing, animal waste managements and economic analysis, efficient utilization and management of human and natural resources, as well as organizing training courses for technicians and graduates, and higher education courses (PhD courses).

*National Institute of Veterinary Research (NIVR)* is a public research institution under the Ministry of Agriculture and Rural Development (MARD). The institute has approx. 180 employees including approx. 115 scientists. NIVR is the leading research institute in the field of animal diseases and plays a core role in animal health in Vietnam, the basic tasks of NIVR are as follows: Study on epidemiology, veterinary hygiene (through identify disease's agents in animal feed, animal production, and animal manure) as well as work out animal disease diagnosis and prevention measures; conduct post graduate training in cooperation with other universities for degrees: DVM; MSc, PhD; carrying out extension activities to provide training and assistance for veterinary network in the whole country; study on development and usage of vaccines for control of common infectious diseases which are suitable in Vietnam conditions; study on development of diagnostic kit and application of diagnostic techniques to diagnose diseases on animals in Vietnam.

*Royal Veterinary and Agricultural University (KVL - see also <http://www.kvl.dk>)* has a permanent staff of ca. 1400, including an academic staff of about 700. A total of ca. 3500 students are enrolled at KVL, including 350 PhD students. From KVL the *Dept. of Agricultural Sciences* is involved as partner in SUSANE-research, with research expertise on soil quality, rhizosphere processes, nutrient turnover, the nutritional physiology of plants and the effect on plant production and produce quality. In addition, studies and development of crop nutritional strategies, which optimize resource utilization and minimize the environmental side-effects of fertilization, are performed. Further the *Dept. of Veterinary Pathobiology* is project partner involving expertise within environmental health and parasitology with a focus on occurrence and fate of different types of pathogens in the external environment. The department has for more than 15 years been involved in research and capacity building in Vietnam.

### **Contacts to principal participating institutes in Vietnam and Denmark**

National Institute of Soils and Fertilizers (NISF) Vice director Dr. Tran Thuc Son  
Dong Ngac Commune – Tu Liem District Ha-Noi City Vietnam.

The Danish Institute of Agricultural Sciences (DIAS), Professor Dr. Sven G. Sommer  
Department of Agricultural Engineering, P.O. Box 536, Research Centre Bygholm,  
DK-8700 Horsens.