

## **GEAR-Symposium, 27.-31.8.2001, Cairo, Egypt**

### **“Umweltverschmutzung in Ägypten: Folgen für Mensch, Tier und Pflanze”**

#### **WASTE MANAGEMENT IN INTENSIVE ANIMAL PRODUCTION**

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Even the issues of "good farming practice" in Europe, the USA or in other countries with intensive animal production structures are not enough to deal with the problems of high stocking densities and separation of animal production and arable farming:

- odor complaints of the neighbors,
- pollution of ground and surface water (eutrophication) through leaching,
- soil pollution through bad distribution and accumulation of nutrients, above the needs of plants ,
- emissions to the atmosphere (NH<sub>3</sub>, N<sub>2</sub>O, CH<sub>4</sub>, odorous),
- disease risks (for livestock and general public).

In these areas continuous accumulation of minerals and organic substances in soils and water is observed, due to the import of nutrients in the feeds. Hygienic impacts of intensive animal production can endanger public health or the health of other livestock. Odor and other gaseous emissions from animal production facilities need to be reduced as well, in order to improve their acceptance. Therefore effective measures have to be taken. Selected technical solutions are presented to reduce negative impacts of livestock manures on our natural resources. Some of them are already practicable and available to farmers like separation, aeration or anaerobic digestion; others such as membrane technology are still in development. To find the best process for the specific situation, it is important to clearly understand its main purpose, e.g. to prevent or reduce water or / and air pollution, to promote nutrient recovery, to abate odorous etc..

There is a wide range of methods to process livestock manure to meet an equally wide range of purposes. Which techniques are favoured or neglected is often only understood in the context of farm structure, environmental situation, administrative practises and profitability of animal production of every region / country. The purpose of the presentation is to show selected techniques which are already available to farmers like separation but also others such as membrane technology which are still at a development stage and it is not sure, that they will end up as viable process for agricultural use.

Processes are generally based on physical, thermal, biological or chemical principles. Inevitably, some systems include combined steps, especially the full treatment packages. Examples of these, some of which are working units in the Netherlands, in France, Germany or Italy are presented. For evaluating such options it is important to understand clearly its main purpose, e.g. to prevent or reduce water or air pollution, to promote nutrient recovery, to abate odour, etc.. It is important to identify suitable markers to enable an objective comparison of one system against another. Costs (as a charge for each animal produced) will always be the final test of the suitability of any but so too should a range of other factors including the reliability and safety of the plant and its practicality in the farming environment.

In conclusion the recent past has shown, that strongly subsidised techniques will not become lasting and wide spread solutions when financial benefits are stopped or when transportation is still cheaper than treatment to solve the main problem of bad distribution.

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