

“The Function of The Verification Scheme VERA in Facilitating a Market for Environmental Technologies for Agricultural Production”

For the Conference

*“Accelerating Eco-innovation Through
Environmental Technology Verification”*

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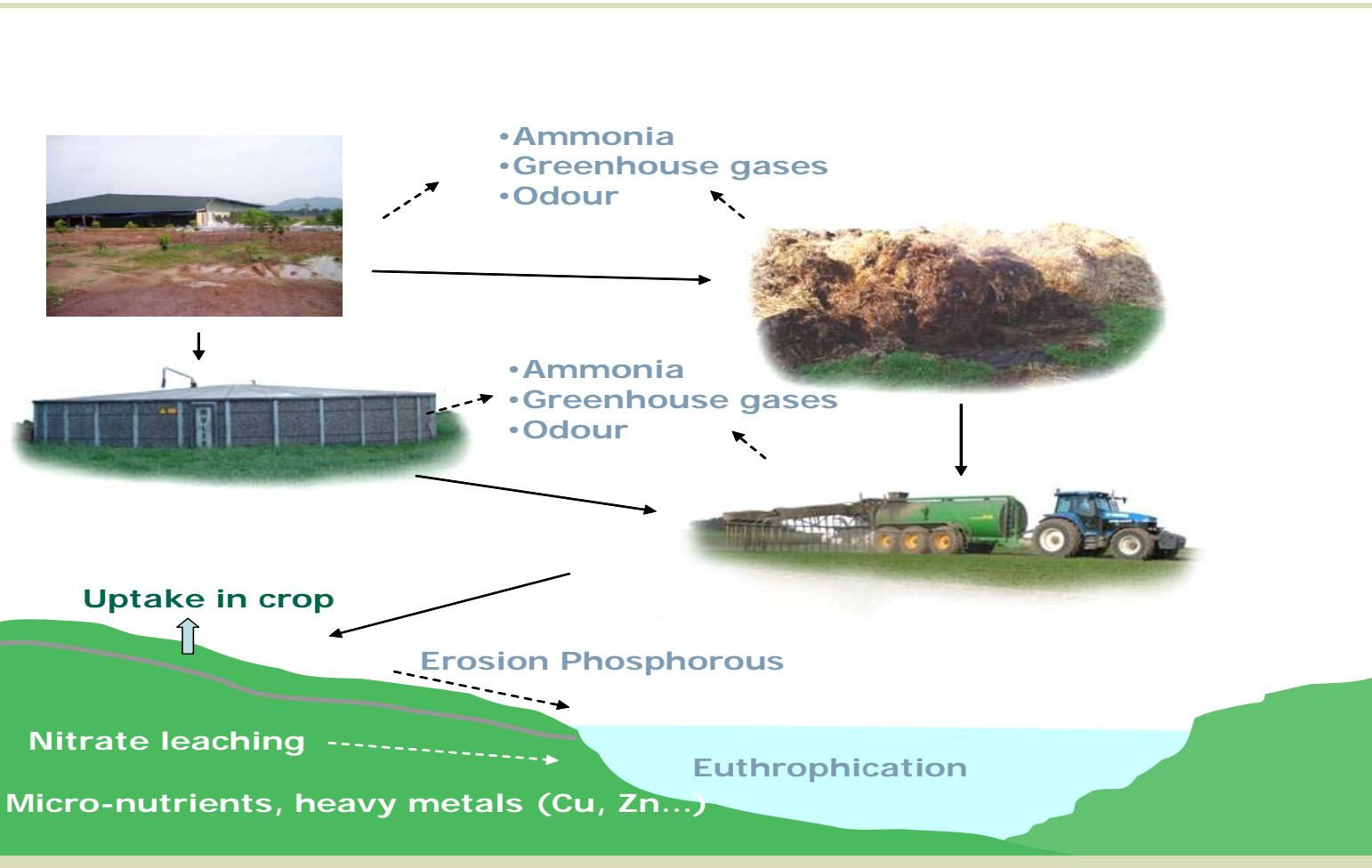


Content of the presentation



- Introduction to central sources to environmental pollution in livestock farming
- Trends in the global livestock production & consumption and demand for environmental technologies in the sector
- The Danish political back ground of VERA
- Why test and verification of environmental technologies for agricultural production?
- Why international cooperation on test and verification of environmental technologies for agricultural production?
- Dutch, German and Danish cooperation on the development of VERA
 - The purpose of the VERA test protocols
 - The organisational frame of VERA
- The Danish Environmental approval act for livestock holdings and the planned connection to VERA

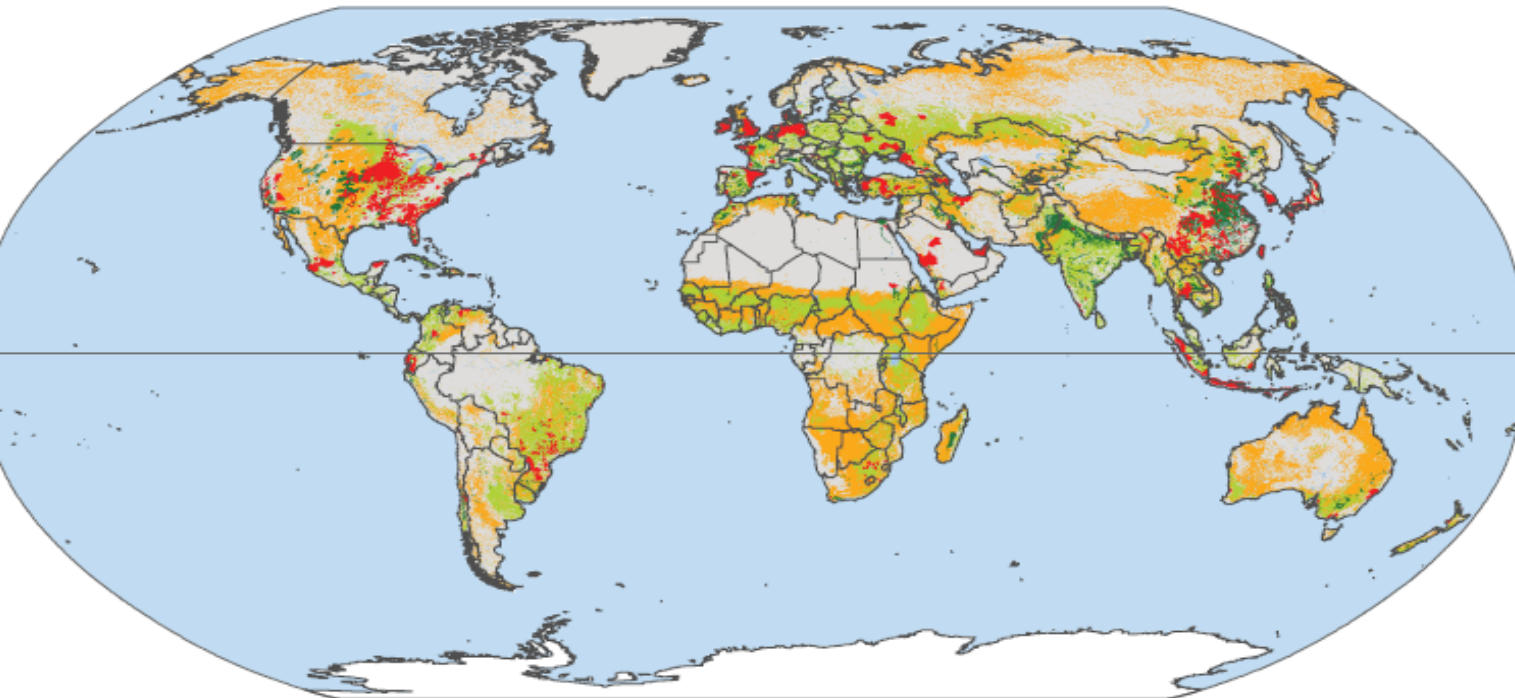
Central sources of pollution in intensive livestock production



Estimated distribution of livestock production systems (FAO, 2006)



Map 13 Estimated distribution of livestock production systems

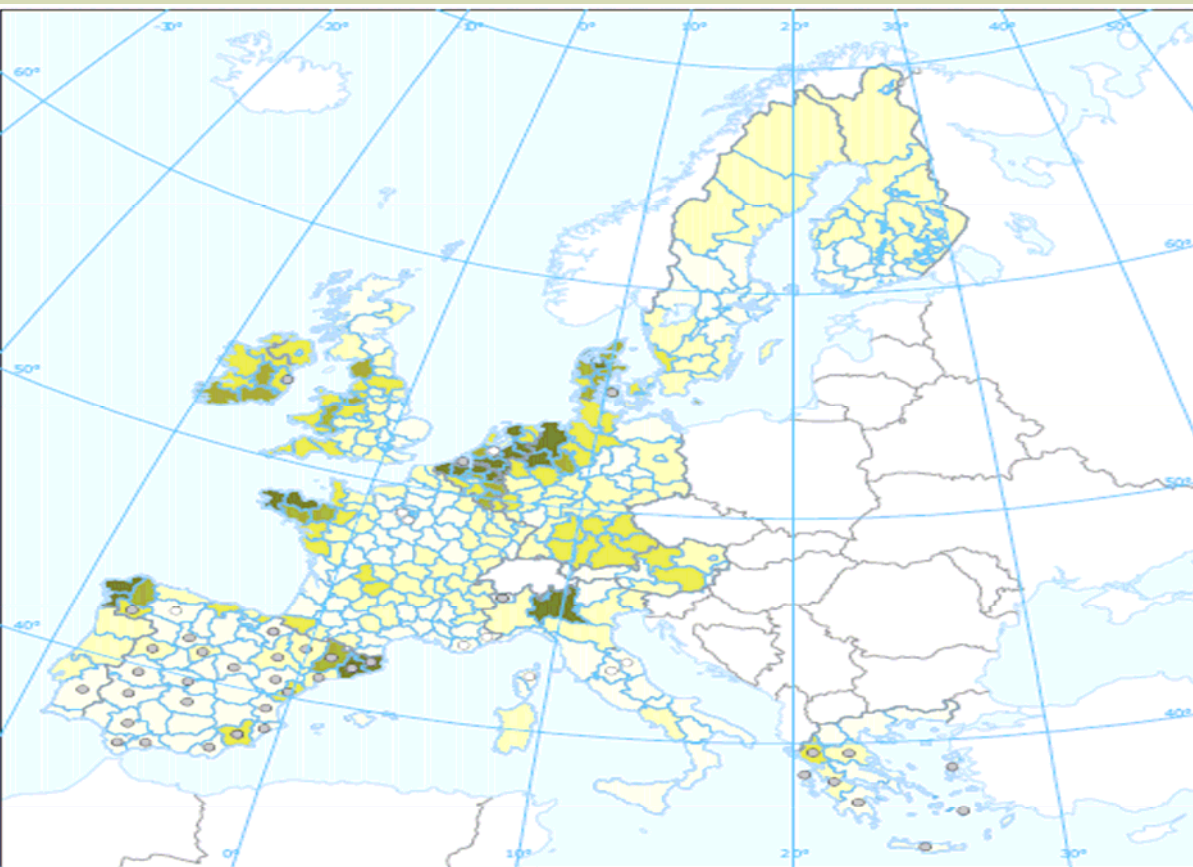


Livestock production systems

- Mixed, irrigated
- Mixed, rainfed
- Grazing
- Other type
- Areas dominated by landless production
- Boreal and arctic climates
- National boundaries

Source: LEAD. Based on methodology of Seré & Steinfeld, 1996. Of the land based system classes only the first classification level is displayed. This is based on land cover data (Global Land Cover 2000, available at www-gvm.jrc.it/glc2000/) and irrigated areas (Global Map of Irrigated Areas, Version 2.1, Siebert *et al.*, 2001). Industrial (landless) production dominated areas refers exclusively to monogastric production. Land-based system held pig and poultry populations are estimated locally according to the approach of Gilbert *et al.* (2004), using local animal population data (see Maps 16 and 17), national level land-based production estimates (Groenewold, 2004), national human agricultural populations (FAO, 2006b) and a global rural population density grid (LandScan, 2003). Areas dominated by industrial production systems are sub-national administrative areas in which the aggregated land based system populations produce less than half of the areas total production, accounting for the higher productivity of industrial systems.

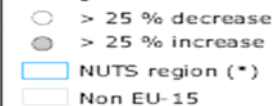
Regional distribution of cattle, sheep and pig livestock units (LU) per ha of UAA in 2000 and changes from 1990-2000



Regional distribution of cattle, sheep and pig livestock units (LU) per utilised agricultural area (UAA) in 2000 and change from 1990-2000



Change 1990-2000



(*) NUTS 2: Austria, Belgium, Germany, Greece, Italy, Luxembourg, Netherlands, Portugal and the United Kingdom.
NUTS 3: Denmark, Finland, France, Ireland, Spain and Sweden.

NUTS = Nomenclature of territorial units for statistics.
© EuroGeographics Association for the administrative boundaries.

Note: Poultry figures are part of the calculation of national gross nitrogen balances but not included in this graph. Adding poultry production would emphasize some regional livestock hot spots, for example in the Benelux region.

Source: Community survey on the structure of agricultural holdings (FSS), Eurostat.

Increased global demand for environmental technologies for agricultural production



- ***Increase global demand for livestock products***

Demographic factors affects the demand for livestock products :

- *bigger populations,*
- *age structure and urbanisation.*
- *Growing economies and income levels*

- ***Fewer and bigger livestock production units utilizing from economic of scale***

- *vertical integration of the ownership of more parts of the production chain*
- *Increased concentration*
- *Decreased number of livestock farms, but increased in size*

➤ The sector will increase the demand for environmental technologies in countries that regulates its pollution

The Danish political back ground of VERA



- The Danish food sector is vital to the economy of Denmark, but is at the same time a central sources to pollution
- In 2006 a commission under the Danish Government was established to make a strategy for the agricultural sector
- The goal was to establish a sector that was internationally competitive and at the same time able to fulfil different environmental demands both at national and EU level
 - NEC for ammonia
 - Water frame directive
 - The nature 2000 directive
 - GHG reduction demands

The Danish political back ground of VERA



- A central focus of strategy formed:

To govern the structural changes of the Danish livestock production towards higher levels of eco-efficiency through the development and implementation of new eco-efficient technologies.

- Three central policy measures are encompassed in the strategy:
 1. The adoption of a 35.000.000 Euro R&D programme (2007-2009)
 2. A new environmental approval act for livestock holdings
 3. A test and verification scheme for environmental technologies for agricultural production

Why test and verification of environmental technologies for agricultural production?



- Central stakeholders only have limited information on the performance of environmental technologies, which hampers the development of a market of these technologies.
- As a result:
 - Farmers hesitate to invest in the new environmental technologies for agricultural production
 - Authorities are reluctant to approve that farmers use these new technologies as a part of the environmental solution in their livestock production
 - Investors hesitate to invest in companies that have develop new promising livestock technologies
- The goal of VERA is to provide reliable and comparable information to the stakeholders of the sector and thereby facilitate market development

Why international cooperation on test and verification of environmental technologies for agricultural production?



- The case of the air cleaner company SKOV
 - *Will soon have undergone five different test and documentations processes / five different countries with an average time duration of 2,5 year.*
- A central goal of VERA is to coordinate the test activities taking place in different countries and to facilitate the development of a common market
- A common market for environmental technologies for agricultural will result in:
 - More products
 - Lower prices due to more competition
 - A bigger demand for eco-efficient products due to bigger markets
- VERA benefits farmers, producers, and the environment.

Dutch, German and Danish cooperation on the development of VERA



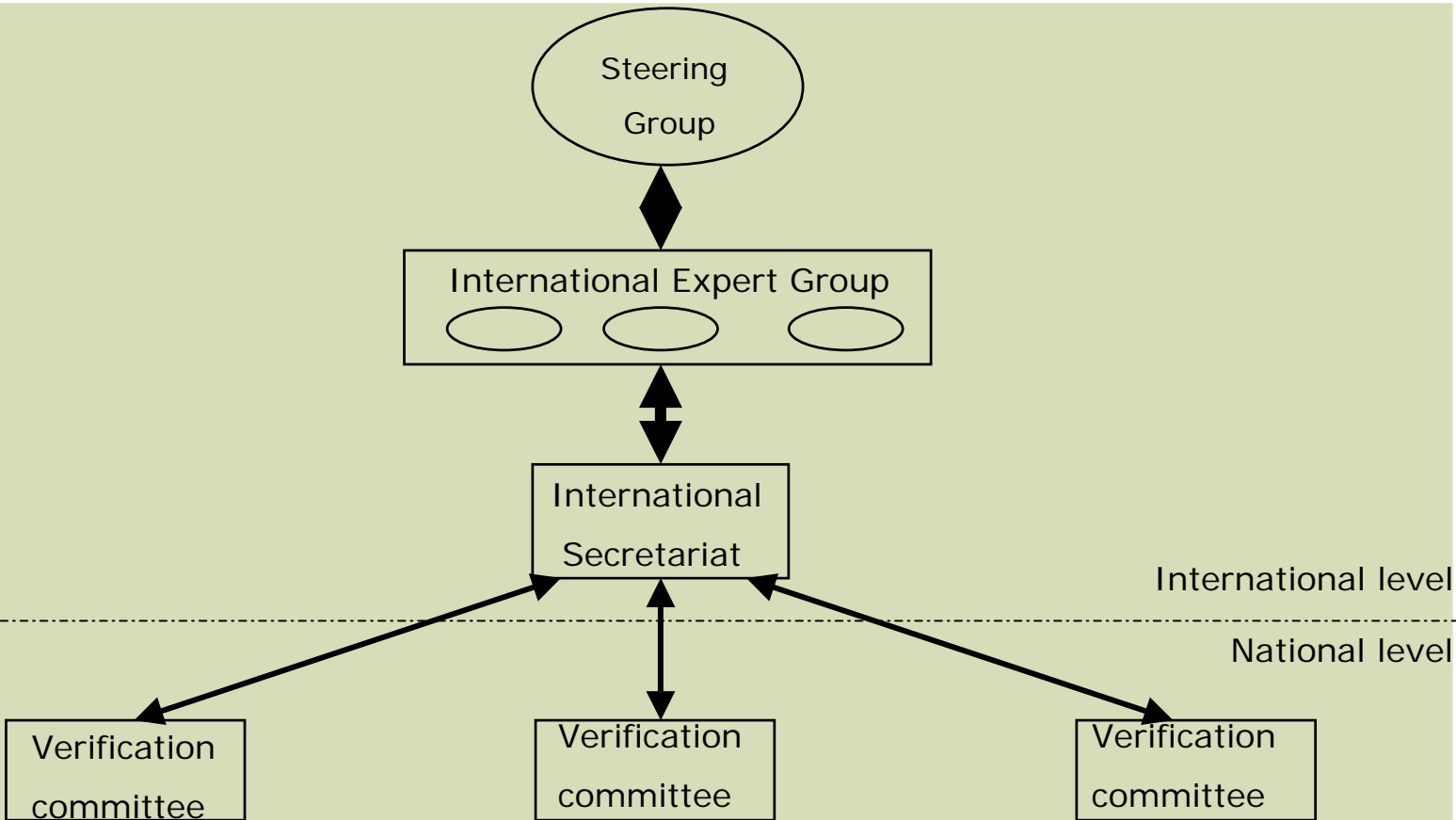
- The cooperation was initiated in the summer 2008
- The partners in the cooperation are:
 - The Federal Ministry for Food, Agriculture and Consumer Protection (BMELV),
 - The Ministry of Housing, Spatial Planning and the Environment (VROM),
 - Danish Environmental Protection Agency (EPA)
- The following test protocols have been under development and are about to be finalised by a number of designated experts from each country :
 - Test Protocol for Air Cleaning Technologies
 - Test Protocol for Covers and other Mitigation Technologies for Reduction of Gaseous Emissions from Stored Manure
 - Test Protocol for Measurement of Gaseous Emissions from Land Applied Manure
 - Test Protocol for Slurry Separation Technologies
 - Test Protocol for Livestock Housing and Management Systems
- The draft version of the five test protocols were presented 3rd of April, 2009 in Utrecht. At the same time the test protocols were in public hearing.

The purpose of the VERA test protocols

- The VERA test protocols specify procedures and test methods that should be complied with in the test and verification process within the VERA frame
- The focus of VERA test-protocols are on testing technologies' eco-efficiency and operational stability
 - Tests both includes measurements of technologies resources consumption and their ability to reduce various emissions
- The purpose of the VERA test protocols:
 - ensure the reliability of the test and verification process
 - enable comparison of the performance of different technology products
 - transparency will increase competition and innovativeness in the market between technology producers



The organisational frame of VERA



The Danish Environmental approval act for livestock holdings



- The new Danish environmental approval act for livestock holdings is an example of how eco-efficient livestock technologies are promoted via regulation
- The new approval act was in acted in January 2007. According to the act farmers are required to apply for an environmental approval when he/she wants to change or expand the livestock production facilities
- In order to get an environmental approval farmers have to fulfil requirements concerning Best Available technique (BAT) and the emission of:
 - Nitrates
 - Phosphorus
 - Odour - fixed limitations with a distinction between individual housing, grouped housing, and residential areas
 - Ammonia – 15% in 2007, 20% in 2008, and 25% in 2009
- The application of eco-efficient livestock technologies is a central mean to fulfil these emission requirements

The Technology List of the Environmental Approval etc. of Livestock Holdings Act



- The Technology list is a part of the Environmental Approval act of livestock Holdings
- Guiding list for farmers and municipalities in the approval process
- The Technology list is administrated by the Danish EPA
- Contains technologies that have proven an environmental effect and operational stability
- The purpose of the technology list is to ensure that technologies applied on farms are operational stable and have the required environmental effect

The verification scheme and the Technology List

- VERA will be a central gate way to the Technology List
- Technology producers will be required to test their technologies with VERA test protocols.
- Based on the test result it will be decided if technologies can be accepted on the Technology List
- The connection to VERA will make the Technology list more international

