Current initiatives related to manure management.

25 April 2012, GAA Seoul, Paul Vriesekoop MSc
Overview presentation

- Current manure management projects
  - No rocket science
  - Make things work
- Linking costs and benefits of manure
  - Package deal as a business model
- Management Improvement Program in the framework of the Global Agenda for Action
  - A proposal
Manure is a valuable fertilizer... if applied correctly and in the right quantities!

But an environmental risk in a surplus-situation

- Mostly in densely populated coastal regions
Two countries with a large livestock sector...

35.000 km²
- 4 million cattle
- 12 million pigs
- 100 million poultry

99.900 km²
- 3.4 million cattle
- 8.2 million pigs
- 150 million poultry
Green electricity or pellets from dry poultry manure

Poultry manure incineration
400,000 t/year, 36 MWe
25 % phosphate in ash
Nitrogen & organic matter lost
Subsidized...

Poultry manure pellets
- 80 % organic matter
- NPK 5-3-3 + Ca + Mg + S + trace elements
Recycling of pig and cattle slurry as organic fertilizer

The nutrient content of every load is analyzed and every truck is equipped with GPS

Manure injection to minimize nitrogen losses
Manure management: logistics, organisation and technology

- Animal
- Storage and (anaerobic) digestion
- Transport
- Application
- Crop production

- Costs – revenues
- Smallholder/landlinked – industrial/landless
ReUseWaste (EU FP7; 01-01-2012)

- Provide new ideas and systems that lead to a major rethinking in the current, established waste management systems
- Train young scientists in developing new technologies (14PhD)
- Provide companies with both improved and new technologies to produce bioenergy, biofertiliser and improved soils.
INEMAD (EU FP 7; 01-04-2012)

- Reconnect livestock and crop production
- INEMAD will address the question of what new methods and how arrangements should be developed to restore the recycling
  > Institutional arrangements
  > Economic added value
  > Socio-psychological factors
  > Legal constraints

Improved Nutrient and Energy Management through Anaerobic Digestion
The Dairy Power/Biogas Capture and Transport project is focused on realizing the significant potential of anaerobic digester systems for U.S. dairy farmers by helping put 1,300 methane digesters on dairy farms by 2020.

Working with regional and national programs, the project addresses existing barriers, such as technology and financing.

www.usdairy.com
DAIRYVILLE 2020!
A VISION FOR BIO-ENERGY COMMUNITIES
IN NEW YORK STATE

2020 GOAL!
☆ 40% of manure goes to digesters.
- Powers 32,000 homes
- Maintains 14,000 jobs
- 100,000 cars off the road in carbon emissions.

★ PERFECT GOAL!
☆ 100% of food & farm waste goes to renewable energy.

VISON
Strengthening the role of farms as the heart of the community.

★ JOBS
★ Energy produced by farm is consumed locally.

★ COMMUNITY AS AN ECO SYSTEM
★ Habitat protection
★ Significant community involvement
★ Industrial ecology
★ Water quality

DAIRYVILLE Welcome!
In memory of Alison McKendric.
China-UK Sustainable Agriculture Innovation Network (SAIN).

- Explore barriers to utilising nutrients in livestock manure, composted manures, anaerobic digestate in an integrated approach with inorganic fertilisers
- Identify knowledge and communication gaps and produce a prioritised list of future research and extension needs
- http://www.sainonline.org/SAIN-website(English)/pages/Projects/Project%20MUC.html
Global Research Alliance on Agricultural GHG

- Aimed at sharing and dissemination of information and coordinating research to mitigate the emissions of GHG from agriculture
- Working Groups: Cropland, Paddy Rice, Livestock, Inventory and Measurements and Soil Carbon and Nitrogen Cycling.
- Livestock Research Group split into Ruminants and Manure Management.
- Manure management group is aimed at mitigating GHG
A mix of private and public costs and revenues

Public goods

Costs

- Disch. revenues
- C credit
- Gas revenue
- Fert revenue

Fertilizer
Biogas
Carbon tax
F+B+C
F+B+C+D
Package deal

- Don’t privatise the revenues and let the costs be a public “good”

- Public private partnership
  - Farmers (livestock and arable)
  - Feed industry
  - Local/regional government
Package deal

- Hiking on manure digester projects
- Two way strategy:
  - smallholders
  - industrial, landless systems
Manure Management Improvement Program

- Re-use of manure reduces the demand for finite resources (P, fossil energy) and emissions to the environment (CO2, Methane)
- Imperfect management
- Spatial separation between feed and livestock production.
Manure Management Improvement Program

- Develop a basic global map of the production of NPK in manures, its present management and actual use as fertiliser
- Identify region-specific shortcomings and required actions to improve the use of manures as fertilizer
- Assess the potential agronomic and environmental impacts of these actions
Manure Management Improvement Program

- **Inventory**
  - Better information on manure management
  - Active involvement of Dialogue partners

- Elaborate inventory data
  - Increase sense of urgency
  - Prioritization of improvement options

- Establish plan(s) of action
  - Plans per country, combine with capacity building
  - Organize funding
Manure Management Improvement Program

- Strategic goal:
  - Improved management (storage and application) to improve food security and to reduce environmental impact
  - Improved farmers knowledge about manure management
  - Improved knowledge for policy makers to create an enabling environment
Manure Management Improvement Program

- Operational goals:
  - Inventory of current manure management
  - Capacity building
  - Action programs: public private partnerships

- Program 2013-2016
Manure Management Improvement Program: contributors

- Netherlands Ministry of Economic Affairs
  - Funding for networks, inventory, action programs

- Wageningen University and Research centre:
  - In kind: research program on food systems, data collection manure management methodology, alignment and elaboration of inventory

- Dialogue countries
  - In kind/funding
  - Researchers in Vietnam, South Korea, China and UK have shown interest
Establishing food security for the future while preserving the environment!

Thank you!
MMIP: time schedule

- **2012: Establishment MMIP**
  - Networking, partners, relationship to GRA
  - Elaboration work plan
  - Governance
  - Search for funding
  - Prepare for start in 2013

- **2013: Start MMIP**
  - Dialogue workshop as a kick off meeting
  - Start inventories