

Current initiatives related to manure management.

25 April 2012, GAA Seoul, Paul Vriesekoop MSc



LIVESTOCK RESEARCH
WAGENINGEN UR

Overview presentation

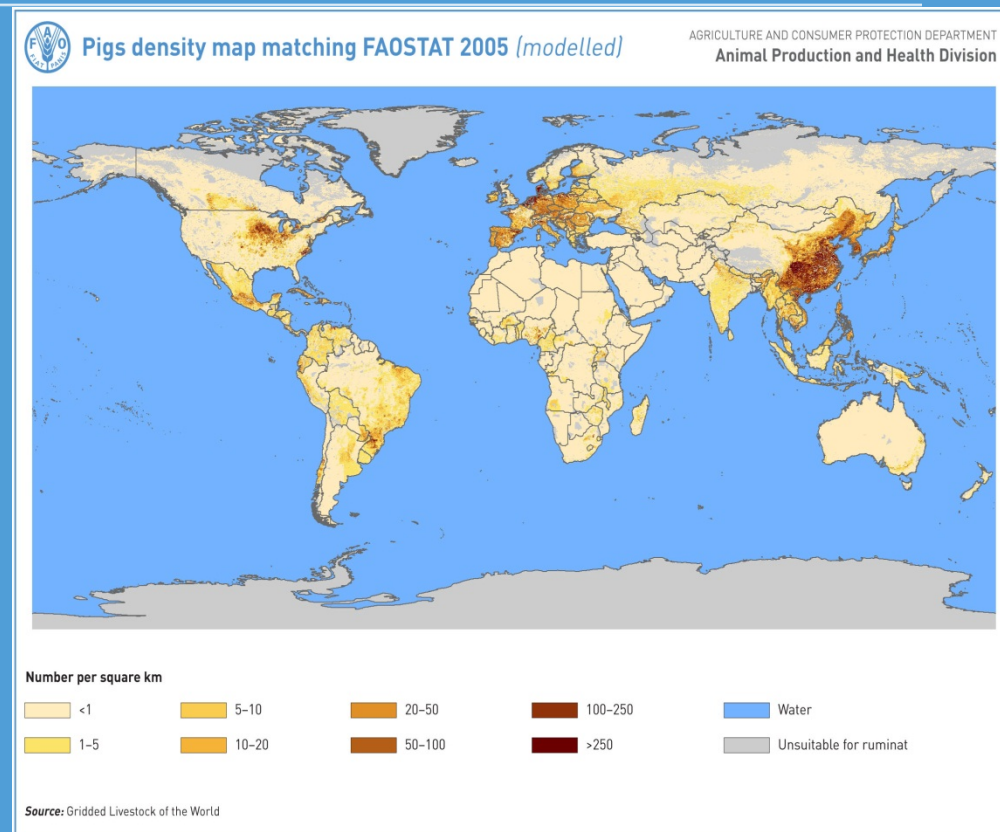
- Current manure management projects
 - No rocket science
 - Make things work
- Linking costs and benefits of manureManure
 - Package deal as a business model
- Management Improvement Program in the framework of the Global Agenda for Action
 - A proposal



Manure is a valuable fertilizer....
if applied correctly and in the right
quantities !

But an environmental risk
in a surpluss-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
- 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



Dairy Power™/Biogas Capture and Transport™ (USA)

- 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.

POWER 32,000 HOMES

- MAINTAINS 18,000 JOBS

100,000 CARS OFF THE ROAD IN CARBON EMISSIONS.

JOBS

● ENERGY PRODUCED BY FARM IS CONSUMED LOCALLY

★ PERFECT GOAL!

★ 100% OF FOOD & FARM WASTE
GOES TO RENEWABLE ENERGY.

INDUSTRIAL ECOLOGY



**WATER
QUALITY**

● HABITAT PROTECTION

COMMUNITY AS AN ECO SYSTEM

★ VISION

STRENGTHENING THE ROLE
OF FARMS AS THE
HEART OF THE COMMUNITY

**SIGNIFICANT
COMMUNITY
INVOLVEMENT**



"In memory of Alisorz McKeddie"

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](http://www.sainonline.org/SAIN-website(English)/pages/Projects/Project%20MUC.html)



China-UK Sustainable Agriculture Innovation Network (SAIN).

- Review current surveys and literature on livestock manure, composted manure, anaerobic digestate management practices in China
- Review current advice provided to farmers about livestock manure, composted manure, anaerobic digestate nutrient utilisation
- Scope trends in livestock production and effects on manure management for the future

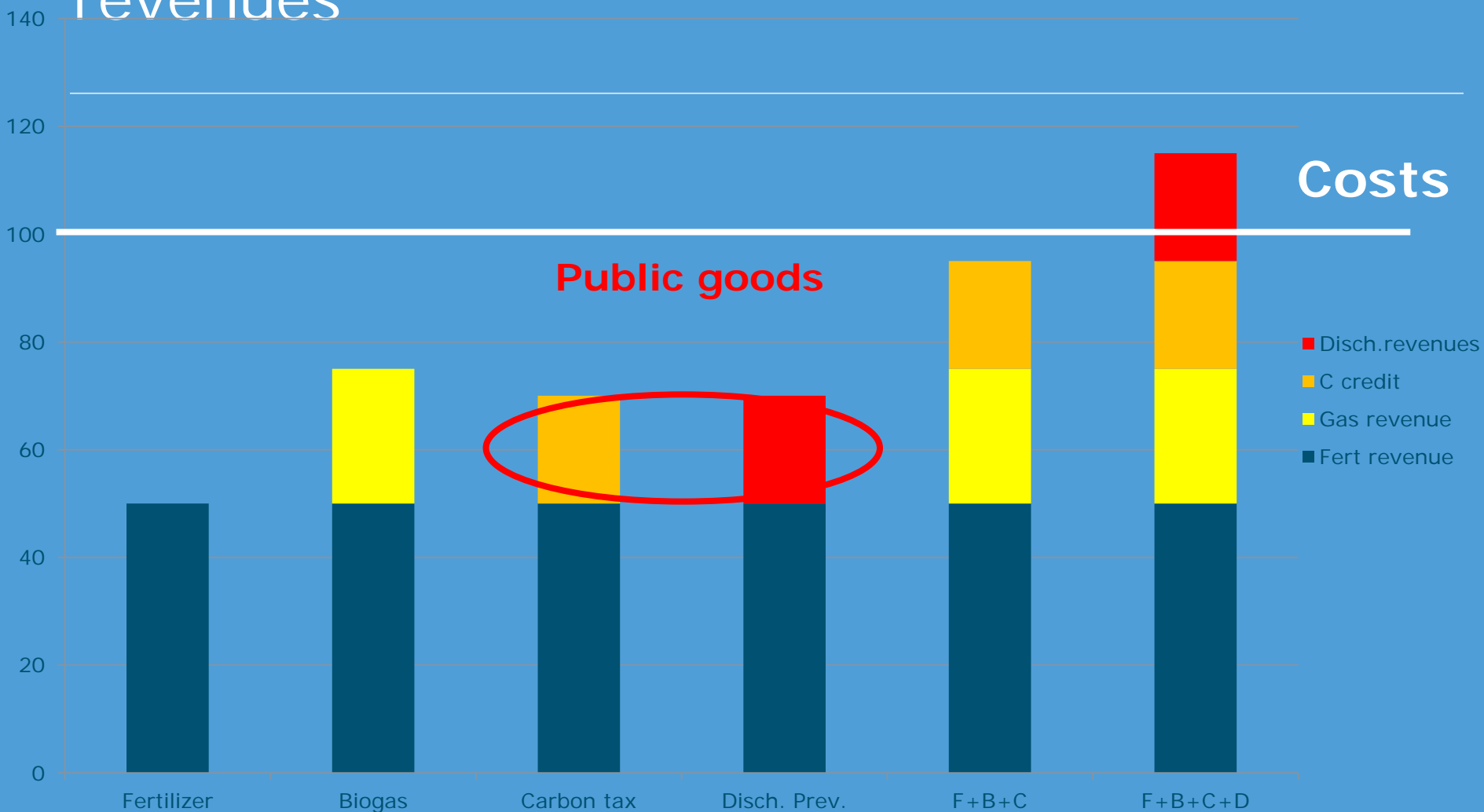


Global Research Alliance on Agricultural GHG

- 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



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 cooperation
- Program 2013- 2016



MMIP: contributors,

- 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, Thailand, South Korea, China and UK have shown interest



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



Establishing food security for the future while preserving the environment!



Thank you !



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