The Manure Knowledge Kiosk,
Short introduction and first results

Action Area
Waste to worth
hosting the
Livestock and Manure Management Component
for reducing Short-lived Climate Pollutants
of the CCAC Agriculture Initiative

a CCAC funded project

Eddy Teenstra, Manager Manure Knowledge Kiosk
Overview

1. Integrated Manure Management
2. The Manure Knowledge Kiosk
3. Results Global assessment
4. Identified Opportunities for Practice Change
Waste to worth?

MANURE IS NOT WASTE !!!

- Manure MISMANAGEMENT is a WASTE !!!

→ a waste of valuable resources
Food for Thought

- Farm animals excrete much of the uptake nutrients unused via dung and urine.
- Capturing these nutrients and recycling them to the soil is essential for the sustainability of crop and livestock systems.
- Efficiency depends on manure management:
  - awareness, knowledge, skills, attitude etc.
  - manure policy and enabling environment.
Cycle principle

inputs → Animals → outputs

- Increase efficiency
- reduces emissions
- reduces need inputs

inputs → Soil → emissions

Animal Feed → Nutrients → Organic matter → Emissions

CCAC - Climate and Clean Air Coalition to Reduce Short-Lived Climate Pollutants
Integrated Manure Management

- Great diversity; no single solution
- Taking into account local circumstances
  - Climate, scale, tradition, agricultural practices etc.
  - Increase efficiency / reduce emissions
Integrated Manure Management

- Collection
- Treatment
- Storage
- Application

- Anaerobic Digestion
- Composting
- Drying
- Separating
- ...
Integrated Manure Management

always site specific

Collection | Treatment | Storage | Application
Collection | Storage | Application
Collection | Application
Collection | Treatment | Application
Minerals

- Carbon (C)
- Phosphorous (P)
- Potassium (K)
- Nitrogen (N)

CH$_4$ (methane)

DUNG & URINE

NO$_x$/NH$_3$ (emissions)
Minerals

**CH$_4$ (methane)** → **Anaerobic Digestion**

- Biogas
  - Save fossil fuel
  - Save firewood
  - Electricity

**SOIL**

- Carbon (C)
- Phosphorous (P)
- Potassium (K)
- Nitrogen (N)
- $\text{NO}_x/\text{NH}_3$ (emissions)

**Digestate**
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practice change → common objective → integrated manure management → reduce SLCPs (methane) → Manure Knowledge Kiosk (MKK)
LMMC implementers

Central Hub
- Wageningen UR Livestock Research
- U.N. Food and Agriculture Organization (FAO)

Regional Centres
- Centro Agronómico Tropical de Investigación y Enseñanza (CATIE) (Tropical Agricultural Research and Higher Education Center)
- Stockholm Environment Institute (SEI)
- International Livestock Research Institute (ILRI)
Manure Knowledge Kiosk

Web-based Knowledge Counter

☞ one Front Door to:

- Subject library
- Global overview of lessons learned
- Entry to Livestock GEO wiki (Google Earth mapping)
- E-Market for service and assistance (Roster of Experts)
- List of Opportunities for Practice Change

www.manurekiosk.org
Roster of Experts

Objective

Provide a network of experts to people and organizations in search for knowledge/expertise about integrated manure management

Invitation to join the Roster ➔ just contact me
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Global Assessment

... of Manure Management Policies and Practices

Two steps

1. General information about national manure policies and the enabling environment

2. More in-depth information about manure practices in areas with large numbers of livestock in confinement
Preliminary Results Manure Policy (MP)

- All countries have a kind of MP
- Always Agriculture and Environment
  some also Energy and Health
- Problem oriented
  e.g. air pollution by Health
- Often weak enforcement and unclear rules
- ‘Stronger’ policies seem to cover less factors, but
  - increase the administrative burden for farmers
  - show more stimulation of good practices
Preliminary Results Enabling Environment (EE)

- Available subsidies and credits ➔ not always available for large scale farms
- Knowledge level IMM not always high enough (some wishful thinking...)
- Social media are spreading but its potential value is probably underestimated (yet)

- Beside knowledge the EE doesn’t seem to be the major bottleneck in improving manure management practices (the in-depth survey may provide the answers)
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Opportunities for Practice Change (OPCs)

- Kiosk financially supports OPCs with high potential to leverage ongoing investments and enhance their potential impact

- Five areas with key barriers:
  1. gathering knowledge
  2. raising awareness
  3. partnerships/networks
  4. policy and capacity development
  5. support of financing
Some examples of OPCs

- **Argentina**
  - Coping with the feedlot revolution: Creating knowledge base on manure management in Argentinian feedlots
    - Focus: gathering knowledge, raising awareness; and policy and capacity development
    - Problem: law enforcement without complete information and adequate tools

- **México**
  - Improving sustainability for small-scale farmers: focusing on better manure management practices
    - Focus: gathering knowledge, raising awareness, partnerships/networks; and policy and capacity development
    - Problem: lack of knowledge about proper manure use; quantity, timing, application, and costs
Some examples of OPCs

- **Malawi**
  Manure management through family size biogas plant of rural smallholder farmers
  - **Focus:** gathering knowledge and raising awareness
  - **Problem:** lack of knowledge about the optimal mixtures of manure and other organic waste to ‘feed’ bio-digesters

- **Nigeria**
- **Ethiopia**
- **Viet Nam**
- **Bangladesh**
- **Thailand**
- **Costa Rica**

**Much emphasis on biogas**
- **To install**
- **To improve performance**
- **To use digestate**
Excretion

- Animal nutrition
- Enteric fermentation

Manure M’ment

- Collection – Storage – Treatment
- Products & Application/use

Fertilization

- Organic matter & Nutrients
- Crop requirements
Food for Thought

- Do we want **OUR** world, which is the world of our **CHILDREN**, to change into this?
I wish you a lot of wisdom and inspiration!
Time for questions

e.g.
  o Subject areas
  o Geographical areas
  o Roster of Experts
  o ...