Challenges of animal performance recording in low-input systems

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Some Background/Introduction

The Challenge for Developing Countries

Meet the increasing demands for food of animal origin
on an increasingly competitive market

- Without having much additional land & water resources to utilize
- While ensuring that environmental (water, land & air) health is sustained
- Ensuring that genetic diversity is sustained!!

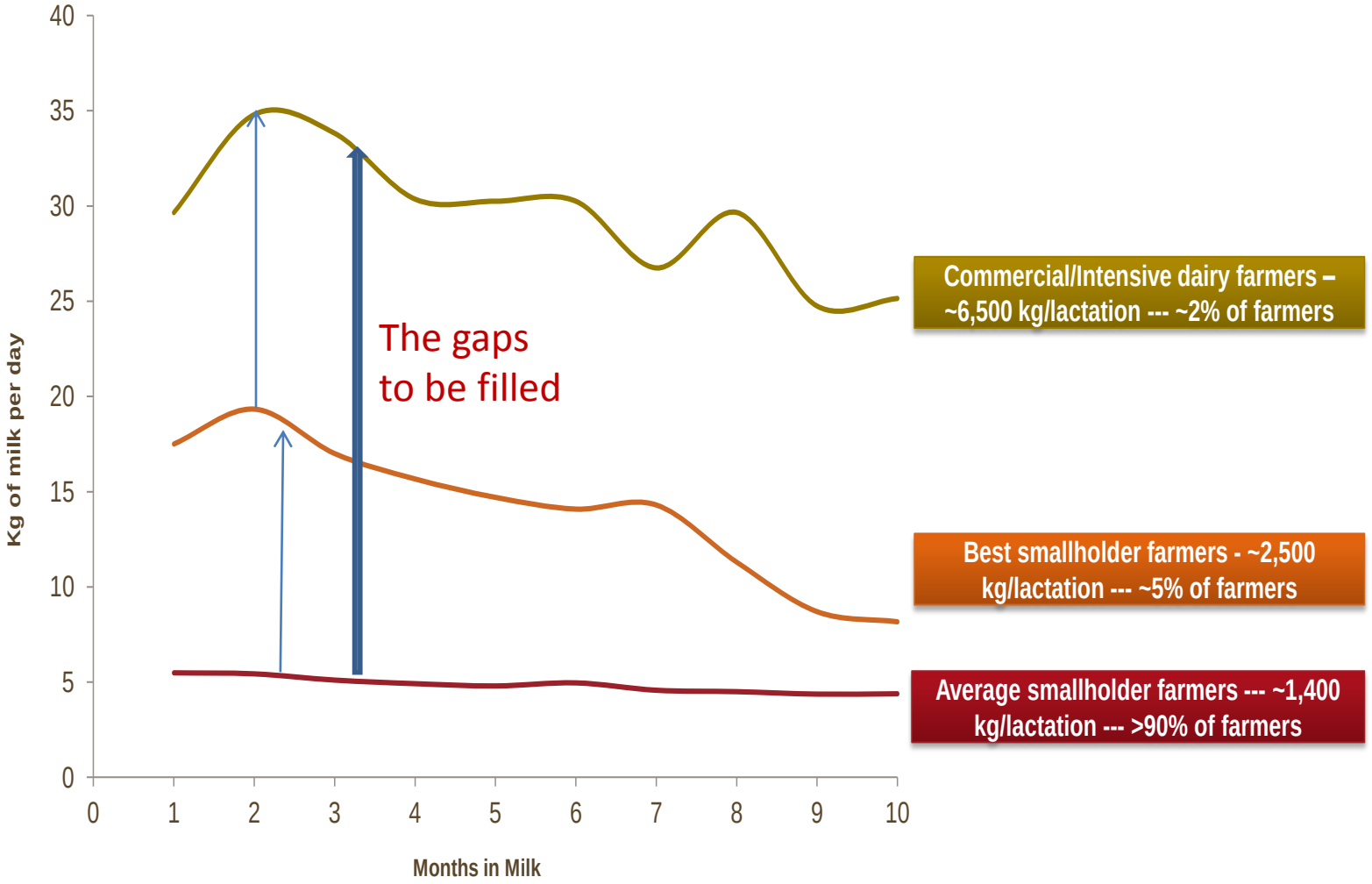
Must utilize the potential of the animal genetic resources and increase the productivity per animal!

Participatory Design and Implementation of Simple & Sustainable Breeding Programs

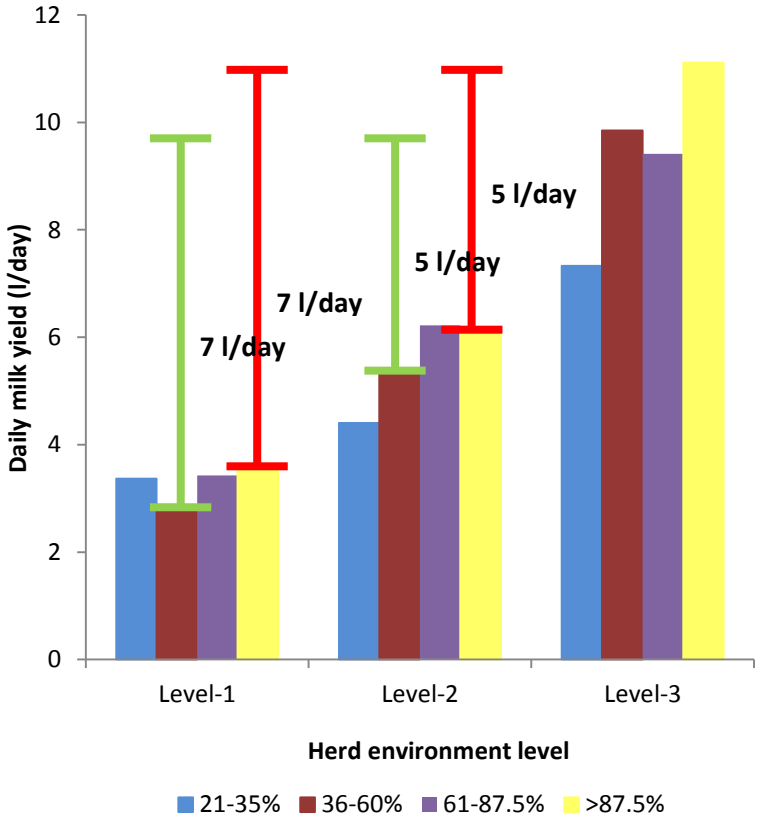
Enable Farmers have Access to the Right Genetics and Supportive Institutions in place

Huge yield Gaps exist

Figure 1: Realized lactation curves of improved (crossbred or higher) dairy cows achieved by different farmer types in Kenya



“Big or exotic” is not necessarily the most profitable



Phenotype is king but records have to be:

- Simple/realistic
- Accurate
- Consistent
- Not all have to record and to be recorded

Characteristics of & limitations of low input systems need to be taken into account

Performance Recording: the challenges

No or Wrong Data System

- Unrealistic/ often complex systems
- Too demanding on farmer/herders (far too many traits too much "rigour")

Recommendations:

- KISS= "*keep it simple & sustainable*"
- Agree on few/key economically important traits, esp. at the start
- Align recording to routine practices (weaning, vaccination, sales
- Memorable events (births, deaths)
- Monthly milk records vs daily records

Simplified Framework: ADGG Example

(3) Digital Information Capture and farmer feedback & actors interaction Systems

(2) improved/certified males/females

(1) Data analytics system

Productivity

Time

Farmer/Herd Bench marking and decisions

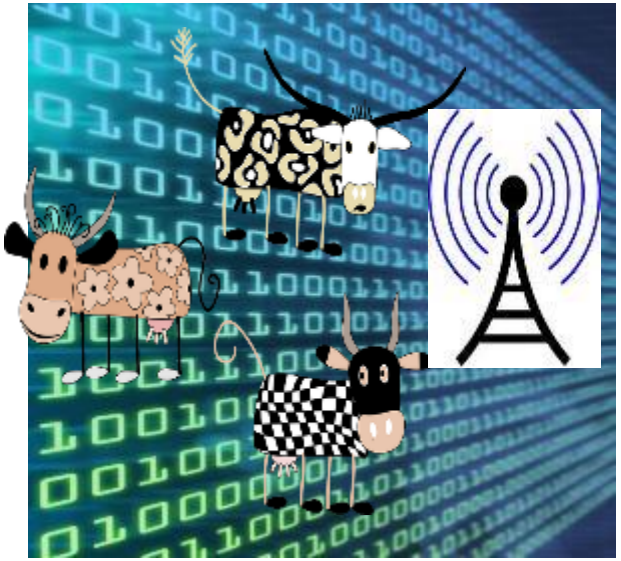
Optimize Realized Productivity for farmers

Weak Institutional Frameworks & Organizational & Support Systems

- Complex national identification & recording systems developed with no participatory engagement of stakeholders (farmers & herders)
- Poor/No extension-inadequate use of data-No feedback systems-farmers get no value for recording efforts
- Farmers are not organized (farmer groups/ or coops
    - Coops often have bad reputations-(corrupt & poorly governed or politically manipulated)

Poor infrastructure and Resourcing

- Poor road/rail systems
- poor/irregular power supply
- Inadequate ITC system (telephone networks)
- Lack of automation
- Recording and animal identification seen by farmers as entry point for the taxman to strike
- Pastoral animals are difficult to record



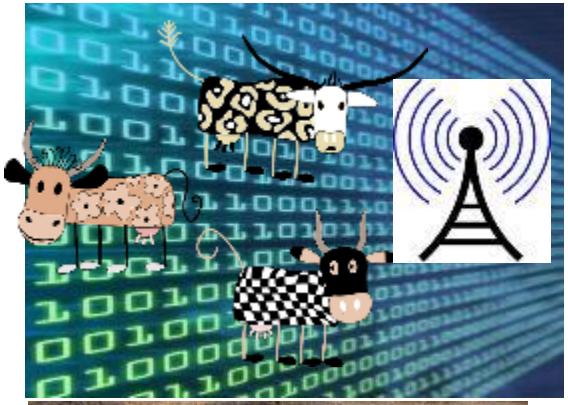
Cultural beliefs and literacy levels

- Conflicting cultural beliefs e.g. no ear tagging of animal
- Low literacy levels, esp. among pastoral communities
- Pastoral systems/-too frequent stock movements- so innovative approaches needed
- Aging farming and herder community
  - Average age of sub-Saharan African farmer is 60 yrs therefore little/no incentives to invest in new techs) such as Use of telephony/ new phenomics method such as pedometers, Mid-infra-reds techs etc)

Poor and unsupportive policies

- Proportionately too little national budgets to the agric/livestock sectors relative to their contribution to GDT
  - Contributes 20-50% of agric GDP, but gets < 5% of national budgets
- No incentives/inadequate incentives for the youth to get into the livestock farming and profitable engagement in livestock value chains
- Taxation considered to be high with no justification (e.g. local taxes charged on milk sold, but no support for milk recording)
- Mandatory livestock identification & traceability (LITs) policies and formulated/enacted with little to no farmer participation (little links/consideration to real benefits to farmers)

However!



We can now have the following tools/technologies with which we can tackle most of the above challenges:

- Smart use of ICT technology
  - Fast, light, cheap performance data harvesting.
  - Cheap sensors, mobile platforms, crowd sensing…..
  - Participatory designs & implemented Innovation Platforms
  - Community based breeding programs (links to markets/IBLI)

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Patron: Professor Peter C Doherty AC, FAA, FRS
Animal scientist, Nobel Prize Laureate for Physiology or Medicine–1996

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